

A Report Prepared for

Northwestern Steel and Wire Company
121 Wallace Street
Sterling, Illinois 61081

US EPA RECORDS CENTER REGION 5



1010276

**NORTHWESTERN STEEL AND WIRE COMPANY
CORRECTIVE MEASURE IMPLEMENTATION PLAN
PRE-RCRA LANDFILL**

HLA Job No. 12069,058.12.1

P-176(a)

by:

A handwritten signature in blue ink that reads "FRED LAMAR".

Fred C. Lamar
Project Engineer

A handwritten signature in blue ink that reads "Timothy M. Bryan".

Timothy M. Bryan
Senior Hydrogeologist

Harding Lawson Associates
Oakbrook Terrace Tower
One Tower Lane, Suite 1300
Oakbrook Terrace, Illinois 60181

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1.0 INTRODUCTION

The purpose of this document is to provide the Corrective Measures Implementation (CMI) for the pre-RCRA landfill at Northwestern Steel and Wire Company (NSW) in Sterling, Illinois. The CMI was required by the EPA as a result of the Corrective Measures Study (CMS) that NSW conducted as part of its RCRA Part B permit.

On March 22, 1993, the USEPA issued a modification to the Part B permit that approved the limited action alternative. This permit modification requires the posting of signs around the pre-RCRA landfill and monitoring of the groundwater wells associated with the landfill. The permit modification also requires NSW to prepare a Corrective Implementation (CMI) workplan. The purpose of the CMI is to design, construct, operate, maintain, and monitor the performance of the corrective measures selected to protect human health and the environment.

The limited nature of the selected corrective measure consists of sampling an existing groundwater monitoring well network and installing warning signs around the pre-RCRA landfill. There are no engineering design or construction activities associated with the implementation of this corrective measure. Therefore, the CMI workplan is limited to describing the activities associated with the maintenance of the landfill cover and monitoring well system and the collection and analysis of groundwater samples.

The CMI workplan consists of the following sections:

- Program Management Plan
- Community Relations Plan
- Corrective Measures Design
- Operations and Maintenance Design
- Groundwater Sampling and Analysis Plan
- Cost Estimate
- Project Schedule
- Health and Safety Plan
- Reports
- Decommission and Decontamination Plan

The pre-RCRA landfill is located approximately 500 feet north of the Rock River (Plate 1) and covers approximately 13.5 acres and is approximately eight to ten feet deep. Solid waste was disposed in the pre-RCRA landfill beginning in 1974. The waste disposed in the pre-RCRA landfill consisted of slag, brick, construction debris, and two sludges generated by on-site pollution control systems. The pre-RCRA landfill was closed in 1980

and a new landfill opened to receive the two sludges only. This new landfill received a Part B permit for the disposal of hazardous wastes. One condition of the permit required a RCRA Facility Investigation (RFI) of the pre-RCRA landfill to determine if any releases from the landfill had occurred.

The RFI was conducted in phases and determined that trichloroethylene, cis-1,2-dichloroethylene, and vinyl chloride were present in the groundwater beneath and downgradient from the landfill at elevated concentrations. Based on the findings of the RFI, the USEPA required that NSW conduct a CMS to determine the best corrective measure alternative to achieve an acceptable level of risk within the exposed population. The CMS consisted of three distinct tasks: 1) additional field tests were conducted, 2) a risk assessment was prepared, and 3) an evaluation of potential corrective measures and recommendation of the alternative(s) that would result in an acceptable risk to human health.

The field studies commenced in March and were completed in April 1991. A pump test was conducted to determine the hydraulic conductivity of the aquifer. Five additional groundwater monitoring wells were installed in the upper 10 feet of the aquifer to determine if there was a vertical differential in the concentrations of the parameters of concern. All deep and shallow wells were sampled to determine what changes may have occurred since the last samples were taken in September 1989. From the pumping test, the estimated rate of groundwater flow was determined to be 1012 feet/year. The sampling results from the monitoring wells indicate that the groundwater plume has not spread in a transverse direction and there appears to be no vertical differentiation in chemical concentrations. The results of the groundwater studies were used in the risk assessment to estimate exposure.

The risk assessment determined that there were two critical pathways of exposure to the impacts of the landfill. These were inhalation of air containing vinyl chloride by a swimmer or fisher and dermal exposure from a wader. The risk assessment then utilized conservative assumptions in determining the concentration of vinyl chloride in the groundwater entering the Rock River and the air immediately above the river. USEPA guidance was used to determine exposure times and characteristics. Using these conservative assumptions, it was determined that the total risk from exposure to the current concentrations of vinyl chloride is 4×10^{-7} . The risk from exposure to TCE is 1×10^{-10} . The current levels of cis-1,2-DCE represent a risk that is 5 orders of magnitude less than accepted

by the USEPA. The risk assessment demonstrated that the current impacts from the pre-RCRA landfill are within the accepted limits of risk as determined by the USEPA.

The various remediation technologies were evaluated as to their potential applicability to the pre-RCRA landfill situation. This evaluation included no action, limited action, source control, groundwater remediation, and a combination of source control and groundwater remediation.

The risk assessment showed that the present situation results in an acceptable level of risk to human health and the environment. Therefore the no action and limited action alternatives are acceptable means of complying with the goals of the CMS. Both result in the protection of human health. The limited action alternative, which is incorporated in the Part B permit modification effective March 22, 1993, offers the additional benefit of on-going monitoring which will provide for the detection of changes in concentrations of compounds of concern.

2.0 PROGRAM MANAGEMENT PLAN

OK

The Program Management Plan documents the overall management strategy for performing the operation, maintenance, and monitoring of the corrective measure. The plan also documents the qualifications, responsibility and authority of all organizations and key personnel involved with the CMI, including contractor personnel.

Northwestern Steel and Wire (NSW) will have overall authority over the implementation of the corrective measures. This will include all groundwater sampling activities, site security, and overseeing contractor activities, when appropriate. NSW will also maintain copies of all raw data generated in the CMI at the facility, as required by Section III.M.2 of the Permit Modification.

Several contractors will be involved in the CMI. The Project Management Organization Chart is presented in Plate 2. The individual roles and qualifications of the contractors and key personnel are summarized below:

2.1 Harding Lawson Associates

Harding Lawson Associates (HLA) was retained by NSW to develop this CMI Work Plan, and evaluate on an on-going basis any trends in groundwater quality data, especially any results which may trigger contingent corrective measures. HLA will also prepare and submit semiannual progress reports as described in section III.M of the Permit Modification (Appendix A).

Harding Lawson Associates (HLA) is a full-service environmental engineering firm with more than 20 offices and over 900 employees nationwide. HLA has extensive in-house scientific and engineering capabilities in the areas of: air quality management; hazardous and solid waste management; remedial engineering; geology; hydrogeology; geochemistry; chemical, geotechnical, and civil engineering; biology and environmental science; toxicology and risk assessment; industrial hygiene and safety; asbestos management; and regulatory compliance.

2.2 Daily Analytical Laboratories

Daily Analytical (Daily) is a full-service laboratory with extensive experience in organic analyses. Daily has been accredited by the Illinois Environmental Protection Agency (IEPA), Illinois Department of Public Health, the Food and Drug Administration, and is a member of the National Voluntary Laboratory Accreditation Program. In addition to performing analytical services, Daily personnel will also be responsible for collecting groundwater samples from the site.

2.3 Key Personnel

Responsibilities of key personnel are depicted in Plate 2 and are described below:

2.3.1 Program Manager, Mr. David Long, Northwestern Steel and Wire:

Mr. Long will retain overall management responsibility of the CMI. He will be responsible for overseeing the contractual obligations of the various contractors assisting NSW. Mr. Long will also schedule sampling events with the laboratory and the contractor responsible for collecting groundwater samples. Communications with EPA, including progress reports, the Final Corrective Measures Implementation Report, and any notifications related to triggering of alternative corrective measures will be the responsibility of Mr. Long. Mr. Long has a B.S. in chemistry and more than 5 years experience in the Environmental Compliance Program at NSW.

2.3.2 CMI Project Manager, Mr. Michael L. Smith, Harding Lawson Associates:

Mr. Smith will retain the role of Project Manager with Harding Lawson Associates (HLA). His responsibilities include the overall authority of overseeing the schedule and budget of HLA's contract with Northwestern Steel and Wire (NSW). He is the primary contact of communicating HLA's progress to NSW. Mr. Smith will have overall responsibility for QA/QC of documents generated by HLA. He will also attend meetings with NSW and EPA to discuss project progress or any changes in the CMI as a result of triggering mechanisms or other considerations.

Mr. Smith is a Registered Professional Engineer and has over nineteen years of consulting and corporate engineering experience. He is highly qualified in many aspects of hazardous waste and project management, especially in matters related to RCRA.

2.3.3 Project Hydrogeologist, Timothy M. Bryan, Harding Lawson Associates:

Mr. Bryan will evaluate the groundwater data and analyze the long term trends in the data, including any exceedences which may trigger alternative measures. Mr. Bryan will be primarily responsible for preparing progress reports and the Final Corrective Measures Implementation Report.

Mr. Bryan is a Registered Geologist with over 11 years of professional experience. Mr. Bryan is an experienced project manager and has performed numerous hydrogeologic investigations at landfill sites. He has a substantial background in evaluating groundwater quality data under many regulatory programs.

2.3.4 Laboratory Manager, Mr. Kurt Stepping, Daily Analytical Laboratories

Kurt Stepping is the Chief Chemist with Daily Analytical and has over 13 years of professional experience in analytical chemistry. Mr. Stepping has extensive knowledge in the areas of inorganic, trace metals, and trace organics analysis, as well as field sampling operations.

3.0 COMMUNITY RELATIONS PLAN

OK

This Community Relations Plan (CRP) has been prepared to guide community relations activities during the implementation of corrective measures at NSW's pre-RCRA Landfill. The purposes of the CRP are to make available to the local community, information concerning the corrective measures actions, and to facilitate communication between NSW and the community.

3.1 Objectives of the Community Relations Program

The community relations program for the corrective measures actions at NSW has four objectives which will guide the community relations activities throughout the CMI process.

1. Provide the Community with Information.

NSW will provide information to citizens and local officials about corrective activities and respond to inquiries from community members in an accurate and timely manner.

2. Respond to Community Concerns and Needs that Arise During the Corrective Measures Implementation.

A major objective of the community relations program for NSW is to identify concerns as they develop and address these concerns quickly and appropriately. NSW will establish a contact person to monitor community concerns and respond to questions from concerned individuals.

3. Provide for Citizen Input and Involvement.

Meetings or public comment periods will be held as needed to receive formal comments from the community. Comment periods will be announced in advance through either a legal/public notice in the newspaper, press releases, public service announcements on the radio, or by fact sheet releases.

4. Provide for Effective Management of the Community Relations Program.

The CRP will be implemented immediately and will continue through the corrective measures period. Monitoring of the effectiveness of the CRP activities will be necessary to determine appropriate revisions which ensure that the community's needs are met.

3.2 Techniques to Accomplish Community Relations Objectives

This section presents the community relations techniques to be employed during the implementation of the corrective measures to ensure that the community is included in the process. The following techniques are organized according to the objectives of the community relations program:

1. Objective: Provide Community with Information.

Technique: Establish Information Repository

Purpose: To provide site-specific information to the community.

Procedure: The information repository will be at the following location:

Northwestern Steel and Wire Company
121 Wallace Street
Sterling, Illinois 61081
Telephone: (815) 625-2500

The placement of documents in the information repository is intended to accomplish the goal of keeping the public informed as to corrective measure activities at NSW. If use of the repository is not adequate for some specialized need, individual requests for documents will be handled on a case-by-case basis. Such requests should be directed in writing to Dave Long at:

Northwestern Steel and Wire Company
121 Wallace Street
Sterling, Illinois 61081
Telephone: (815) 625-2500 ext. 2451

2. Objective: Respond to Community Concerns and Needs that Arise During the Corrective Measures Implementation.

Technique: Monitor Community Concerns.

Purpose: To continually assess and address community concerns throughout the implementation of the corrective measures.

Procedure: NSW will identify a contact person to whom citizens or groups can direct their written concerns and questions. NSW will also provide a telephone number for monitoring community concerns. A representative from NSW, or designee, will be accessible by telephone 5 days a week, Monday through Friday, from 8:00 am to 5:00 pm at (815) 625-2500. Questions or comments will be forwarded to the appropriate person(s) for responses. Each question or comment will be responded to in a timely manner.

3. Objective: Provide for Effective Management of the Community Relations Program.

Technique: Management of Community Relations Program

Purpose: To address community concerns that emerge as a result during the implementation of the corrective measures.

Procedure: Community concerns throughout the execution of the corrective measures may change; therefore, this program will be revised, if necessary, to incorporate additional community relations activities to be conducted. The revisions will be documented as addenda to the CRP.

4.0 CORRECTIVE MEASURES DESIGN

ok

The corrective measure design for the pre-RCRA landfill consists of 1) construction plans for the groundwater monitoring network and 2) the system to prevent unauthorized disturbance of the soil and fill in the pre-RCRA landfill.

4.1 Groundwater Monitoring Well

The groundwater monitoring wells to be used in the CMI are: MW-2, MW-3, MW-4 MW-5, MW-6, MW-8, MW-11, MW-12, MW-15, MW-16, MW-17, and MW-18 which are located as shown in Plate 3. The as-built construction plans and specifications for these wells are presented in Appendix B.

ok

4.2 Unauthorized Disturbance

Unauthorized disturbance of the soil and fill in the pre-RCRA landfill will be prevented by NSW's existing facility security system.

ok

NSW has a facility security system in place to prevent access by unauthorized personnel to the pre-RCRA landfill. NSW employs 24 full-time guards plus four guard sergeants. One sergeant supervises each eight-hour shift. The sergeant is responsible for conducting two complete inspections of the entire plant perimeter each shift to assure unauthorized personnel are not present. The pre-RCRA landfill area is included in these inspections.

The facility site occupied by NSW is surrounded by a security fence with no trespassing signs posted at various places along the fence. Additional signs will be posted around the pre-RCRA landfill as needed. Access to the facility can only be gained through secured gates, therefore preventing unauthorized personnel from entering any part of the facility. The main access gate to the facility is equipped with a guard house which is occupied at all times. A gate located on the western edge of the facility, adjacent to the non-hazardous waste landfill, remains closed with access available to authorized personnel only.

5.0 OPERATIONS AND MAINTENANCE PLAN

Operation and maintenance of the CMI will consist of monitoring and inspecting the integrity of the pre-RCRA landfill and associated monitoring wells. Inspections will be accomplished by an inspector walking throughout the pre-RCRA landfill. Inspections will be performed monthly. Any observations that are made will be recorded on the inspection report form provided in Appendix C. The inspections will focus on the integrity and operability of the items addressed on the inspection report form. The inspector will determine defects in an expedient manner so that more significant problems do not develop. The following items are addressed on the inspection report form:

- Weather conditions.
- Condition of access and service roads.
- Status of warning and hazard signs.
- Stability of landfill berms.
- Evidence of soil erosion.
- Evidence of standing water in the landfill.
- Evidence of dispersion of deposited waste.
- Condition of drainage ditches.
- Condition of monitoring wells.

Pre-RCRA landfill service and access roads will be thoroughly inspected. The presence of potholes, muddy conditions, erosion, or other conditions prohibiting vehicular travel will be promptly addressed.

Warning and hazard signs will be checked for legibility. Additional signs will be posted as needed.

The condition of the landfill will be closely monitored. Berms will be maintained to assure stability. Drainage ditches will be inspected and serviced to maintain functional drainage paths. The presence of erosion, standing water, and dispersion of waste will be promptly remedied.

Monitoring wells will be inspected for overall integrity. Damaged well covers and protective casings will be replaced or repaired. Well cover and casing locks will be checked and replaced if necessary. Wells which are damaged and rendered useless will be abandoned and a new well will be installed.

←
damaged
well replacement
needs USEPA
prior approval

6.0 GROUNDWATER SAMPLING AND ANALYSIS PLAN

The following Groundwater Sampling and Analysis Plan (SAP) is a component of the Corrective Measures Implementation Plan (CMI Plan), as required by U.S. EPA's March 22, 1993 Permit Modification. As verbally approved by Mr. Gale Hruska, U.S. EPA Region 5, this SAP is a revision of the approved November, 1988 SAP which was developed as part of the RFI. The November, 1988 SAP "...identifies specific sampling protocols, analytical methods, quality assurance/quality control measures, and data management aspects of the proposed groundwater investigation program at the pre-RCRA landfill site of Northwestern Steel and Wire Company." (Harding Lawson Associates, 1988, p.1). The present SAP was developed to include the original requirements of Appendix I of the Federal portion of the RCRA permit as modified, in addition to those requirements set forth in Conditions III.B through E, III.H, and III.I of the March 22, 1993 Permit Modification.

6.1 Data Collection Quality Assurance Plan

The groundwater monitoring wells that will be sampled during the CMI are shown in Plate 3. The following monitoring wells will be sampled quarterly during the first year of the Corrective Measures Implementation:

MW-3, MW-4, MW-5, MW-6, and MW-15

ok

The first sampling round only will include the following monitoring wells in addition to those listed above:

MW-2, MW-8, MW-11, MW-12, MW-16, MW-17, and MW-18

ok

If after one year of groundwater sampling there has not been a triggering of the contingent Corrective Measures as described in Appendix D, monitoring wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-11, ok

MW-12, MW-15, MW-16, MW-17, and MW-18 will be sampled annually thereafter. Monitoring wells MW-3, MW-4, MW-5, MW-6 and MW-15 will be sampled every six months thereafter for the same constituents. ok

Groundwater sampling will begin with upgradient groundwater monitoring wells (MW-2, MW-8, MW-11, and MW-12) and proceed through downgradient monitoring wells (MW-3, MW-4, MW-5, MW-6, MW-15, MW-16, MW-17 and MW-18) in numerical sequence. Static water levels and well depth will be measured in each well prior to sampling. Water levels will be measured three consecutive times to the nearest 0.01 ft using a steel tape or electrical water level sensor, and recorded in the field notebook. Prior to collecting groundwater samples for chemical analysis, water which is standing in the well casing and filter pack will be purged so that the sample will be obtained from water representative of ground water in the aquifer. A minimum of three well casing volumes of water will be removed using a bailer or an inertial pump, whichever is appropriate for the depth of the well. If feasible, dedicated equipment (PVC bailer or polyethylene inertial pump) will be used for each monitoring well. Purged water will be monitored for pH and specific conductance. Purging will be considered complete when a minimum of three well casing volumes have been purged and the pH and specific conductance parameters have stabilized. Purged groundwater will be temporarily stored in dedicated plastic containers and pumped back into each monitoring well after completion of each sampling event.

Groundwater samples from each well will be collected using a clean Teflon® bailer. Groundwater samples will be carefully poured from the sampling bailer into pre-cleaned, laboratory-supplied glass VOA vials with Teflon® septum caps. The VOA vials will be completely filled to eliminate air bubbles. Each groundwater sample will be sealed and labeled using labels provided by the analytical laboratory. The sample identification for each sample will be as follows:

- Site Identification (NSW for Northwestern Steel and Wire).
- Monitoring Well Number (MW).
- Ground water sample number (GW1) increasing sequentially.

An example groundwater sample identification number is NSW-MW1-GW2, which indicates that this sample was collected at the Northwestern Steel and Wire site from monitoring well MW-1. Samples will be placed on ice in a cooler for sample preservation. Water temperature, pH, Eh, and specific conductance measurements will be measured and recorded in the field notebook at the time of sampling. Field measurement equipment will be calibrated daily according to the manufacturer's recommendations.

As part of the quality assurance program, one duplicate groundwater sample and one field equipment blank per sampling event will be collected and submitted to the laboratory for contaminant analysis. In addition, a trip blank will be submitted with each sample shipment and analyzed for volatile organic contaminants. Samples will be preserved as described above and shipped to the analytical laboratory in a timely manner. Chain-of-custody forms for the samples will be included in each shipment. These forms will be similar to that included in Appendix E.

Groundwater monitoring and sampling equipment will be decontaminated prior to use at each monitoring well using procedures discussed in Section 9.13 to prevent the possibility of cross contamination between monitoring wells. Care will be taken to prevent the decontaminated well purging and sampling equipment from coming into contact with the ground surface.

When samples are received at laboratory, sample containers will be inspected for integrity, proper labeling, proper preservation, and properly completed chain of custody form(s). The samples will be logged in by the laboratory and a unique laboratory sample number assigned to each sample. Laboratory sample numbers will be entered into the laboratory's master log book and used on sample laboratory sheets. Other pertinent information such as the date and time of sample receipt will also be recorded. Samples will be stored in secured refrigerators at the laboratory.

Groundwater samples will be analyzed for vinyl chloride, cis-1,2 dichloroethylene (DCE), and trichloroethylene (TCE). Detailed information on the analytical procedures such as potential interferences, precision and accuracy of the methodology, and method detection limits are identified in *Test Methods for Evaluating Solid Waste*, SW-846 (EPA, 1986). For each groundwater sampling episode, laboratory quality assurance/quality control will consist of analyzing field blanks, field duplicates, and standard laboratory QA/QC samples. If sample analyses fail Relative Percent Difference or Percent Recovery criteria, the sample analysis will be repeated once. If both

analyses fail, the most accurate analysis will be reported. All analytical results will be reviewed by the laboratory manager before release. The laboratory manager will sign and validate the analytical report. Preliminary data will be received by Northwestern Steel and Wire within three weeks from receipt of samples at the laboratory.

6.2 Data Management Plan

The proposed groundwater sampling and analysis plan (Section 6.0) will comply with the groundwater monitoring schedule (required wells and sampling frequency) identified in the final Permit modification dated March 22, 1993 (U.S. EPA, 1993) and will provide data necessary to characterize the extent of groundwater contamination at the pre-RCRA landfill site. This will include:

- Measurement of water level elevations which will be used to determine ground water flow direction.
- Measurement of ground water pH and conductivity during well purging to monitor the stabilization of these parameters prior to sample collection.
- Chemical analyses of groundwater samples for vinyl chloride, TCE, and cis-1,2 DCE to evaluate current groundwater quality at the site.

All sampling and decontamination protocols will be thoroughly documented in a field log book or daily field report. The results of this sampling program will be provided in the semi-annual progress report. Analytical results will be tabulated and discussed in the text of the report. Graphical displays will include a site map illustrating the locations of monitoring wells, a map illustrating the total concentrations of the subject parameters along the compliance boundary, and graphs depicting the change in concentration of individual parameters over time.

↑ copies of the data, etc
as required in Condition
III. M. of the Permit Mod.

7.0 COST ESTIMATE *ok*

The most significant cost associated with the Corrective Measure is the proposed groundwater monitoring program. Assuming no triggering of contingent corrective measures occurs, groundwater monitoring in accordance with the schedule outlined in section III.H. of the March 22, 1993 Permit Modification will continue for the duration of the permits or until cleanup standards are met as described in Section 3.E.2 of the Permit Modification letter dated March 22, 1993. For purposes of demonstrating adequate financial resources to implement the corrective measures, costs associated with groundwater monitoring have been estimated for the first five years of monitoring. These costs are included in the operation/maintenance costs.

Capital costs for this Corrective Measure are minimal, and include items such as restricted access signs for posting around the landfill vicinity. In keeping with the intent of section III. K. 2. of the Permit Modification, costs associated with construction of a fence have not been included in this cost estimate.

Operation and Maintenance Costs

Analytical and Associated Costs (First Five Years Only)	\$38,500
Reporting (Semi-Annual Progress Reports [First Five Years] and Final Corrective Measures Implementation Report)	\$26,000
Capital Costs	<u>\$ 500</u>
Total Estimated Costs	\$65,000

8.0 PROJECT SCHEDULE

The corrective measure for the pre-RCRA landfill will be completely implemented within a relatively short time frame. The schedule for the CMI is divided into two parts and is shown in Plates 4 and 5. Plate 4 is the schedule for those activities with a date fixed by the permit modification. Plate 5 is the schedule for those activities whose date is dependent on approval by the USEPA.

9.0 HEALTH AND SAFETY PLAN ok

9.1 Introduction

The purpose of this Site Safety Plan (SSP) is to define both the known and potential hazards on the site and dictate the appropriate methods and equipment necessary to perform the work in a safe and productive manner.

All personnel participating in the field must be trained in the general and specific hazards unique to the Northwestern Steel and Wire Company (NSW) and, if applicable, meet recommended medical examination requirements. All site personnel and visitors shall follow the guidelines, rules, and procedures contained in this SSP. The Project Manager or Site Safety Officer may impose any other procedures or prohibitions that they believe are necessary for safe operations.

This plan is prepared to inform all field personnel of the potential hazards on the site. However, each contractor or subcontractor must assume direct responsibility for his own employee's health and safety.

The work to be performed includes the sampling of 12 groundwater monitoring wells.

9.1.1 Possible hazards on this job include the following:

- Physical hazards associated with sampling.
- Chemical hazards associated with inhalation of vapors and dermal contact with water or soil.

9.1.2 Required personal protective items and equipment for this project are as follows:

Level D (with possible upgrade to Level C respiratory protection).

- Hardhat
- Safety glasses
- Nitrile gloves
- Cloth or Tyvek coveralls
- Steel-toed boots

9.2 Health and Safety Goals

The goal for every worker sampling the wells at the pre-RCRA landfill is to protect their health and safety and to maintain compliance with the Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations Standard 29 CFR 1910.120. This goal is accomplished by performing a hazard analysis of the field work to be performed. Worker health and safety is then preserved through the implementation of established safe work practices, ongoing site inspections and air monitoring and the use of protective equipment as needed. All field personnel must review this program and work within the established policies and procedures.

Information on the site description, work practices, protective equipment, etc. is detailed to allow a visitor to the site (including Environmental Protection Agency (EPA) representatives) to gain a working knowledge of site conditions and safety protocol.

9.3 Chain of Command

The Site Supervisor/Safety Officer has responsibility for maintaining a safe work environment using guidelines established in this plan. The Safety Officer has final authority on-site and must eliminate unsafe working conditions. This will be achieved through communication and coordination with the contractor staff in this Chain of Command. Resources available to the Site Supervisor are the Project Manager and NSW's Health and Safety Department.

Key Project Personnel and Associated Health and Safety Responsibilities

1. **PROJECT MANAGER:** David E. Long
(Name)

Health and Safety Responsibilities: The primary function of the project manager is to assemble qualified field personnel to perform assigned tasks. The project manager will be responsible for directing and coordinating field activities in a safe and productive manner. He/she is responsible to obtain and provide the personal protective equipment and familiarize field technicians and subcontractors with proper use.

2. **SITE SUPERVISOR:** Karrol Phillips
(Name)

Health and Safety Responsibilities: Ensure that all field personnel have read and signed the master copy of this document. Check that all site personnel meet requirements regarding training, medical examinations, and fit testing. Acquaint field personnel with potential hazards.

3. SITE SAFETY OFFICER: Karrol Phillips
(Name)

Health and Safety Responsibilities: Ensure that the guidelines, rules, and procedures in this document are followed for all site work. Be familiar with local emergency services. Conduct a health and safety meeting before work start-up. Additional meetings may be required for specific job tasks or site activities. Maintain and inspect personal protective equipment (PPE), monitor on-site hazards, and monitor the physical condition of site personnel.

4. SUBCONTRACTORS: Harding Lawson Associates, Daily Analytical Laboratories
(Company name)

Health and Safety Responsibilities: Follow the guidelines, rules, and procedures in this document.

9.4 Identified Chemicals

Chemical Contaminants Known to be Present:

The following chemicals have been identified in the groundwater near the pre-RCRA landfill: vinyl chloride, cis-1,2 dichloroethylene and trichloroethylene. Hazardous property information for these chemicals is located in Table 1.

9.5 General Work Practices

General Work Practices to be Followed On-site are as Follows:

- The buddy system described in 29 Code of Federal Regulations (CFR) 1910.120(d)(3) will be used during all work activities.
- Smoking, eating, drinking, gum chewing, or tobacco chewing will not be permitted in the area of the pre-RCRA landfill.
- Personnel should monitor weather conditions, particularly temperature and wind direction, because they could affect potential exposure to air contamination and conditions leading to temperature stress.
- Personnel should be alert to any abnormal behavior of other workers that may indicate distress, disorientation, or other ill effects.
- Personnel should never ignore symptoms that could indicate potential exposure to chemical contaminants. These symptoms should be reported immediately to the employees' supervisor or the Site Safety Officer.

- Whenever decontamination procedures for outer garments are in effect, a shower will be taken as soon as possible after the protective garment is removed.
- No facial hair which interferes with a satisfactory fit of the mask-to-face-seal is allowed on personnel required to wear respirators.
- Contact with contaminated or suspected surfaces should be avoided. Whenever possible, do not walk through puddles, leachate, discolored surfaces, kneel on ground, lean, sit, or place equipment on drums, containers, or on the ground.
- Medicine and alcohol can potentiate the effects from exposure to toxic chemicals. Prescribed drugs should not be taken by personnel at hazardous waste operations where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. After hours alcoholic beverage intake should be minimized or avoided.
- All personnel must be familiar with standard operating safety procedures and additional instructions and information contained in the Site Safety Plan.
- All personnel must adhere to the information contained in the Site Safety Plan.
- Contact lenses cannot be worn when respiratory protection is required or when the hazard of a splash or flying dust or particles exists.
- Personnel will be aware of symptoms for toxic chemicals on-site and for heat or cold stress.
- Respirators shall be cleaned and disinfected after each day's use or more often if necessary.
- Prior to donning, respirators will be inspected for worn or deteriorated parts. Emergency respirators or self-contained devices will be inspected at least once a month and after each use.
- The employee will be familiar with all sections of the established respiratory program.
- All personnel going onsite must be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures and communications.
- Any required respiratory protective devices and clothing must be worn by all personnel going into areas designated for wearing protective equipment.
- Visual contact must be maintained between pairs of employees on-site and safety personnel. Every team member should remain close together to assist each other during emergencies.
- During continual operations, on-site workers should act as safety back-ups to each other. Off-site personnel should provide emergency assistance.
- Personnel should practice unfamiliar operations prior to doing the actual procedures.
- Personnel and equipment in the contaminated area should be minimized, consistent with effective site operations.
- Work areas for various operational activities must be established.

- Procedures for leaving a contaminated area must be planned and implemented prior to going on-site. Work areas and decontamination procedures must be established based on expected site conditions.
- Frequent and regular inspection of site operations will be conducted to insure compliance with the HSP. If any changes in operations occur, the SSP must be modified to reflect changes.
- All electrical equipment (power tools, extension cords, instruments, radios, etc.) shall conform to OSHA 29 CFR 1926.400 Subpart K.
- Fire prevention and protection (appropriate signs for flammable liquids, smoking area, storage area for combustible or flammable materials, etc.) shall be in accordance with OSHA 29 CFR 1926.150 Subpart F.

9.6 Site Control/Work Zones

9.6.1 Site Control/Security Measures

The site is secured by a fence and unauthorized access is prohibited. Individual work sites will be barricaded as necessary.

9.6.2 Work Zones

The work zones will accompany sampling activities as the work moves around the site (see Plate 3 for well locations). In general, the informal work zone will be a 20 foot radius around the well.

9.6.3 Site Visitors

Site visitors will be trained in the contents of this SSP and will be required to sign the visitors log in Section 9.14, Item Number 4.

9.7 Site Resources

Locations of Resources Available to On-site Personnel are as Follows:

Drinking water, toilet facilities and electricity are available in the buildings on the NSW site. Other major resources for on-site work, such as a telephone or 2-way radio, fire extinguisher, PPE, portable eye wash station, and a First Aid Kit which complies with 29 CFR 1926.50, should be provided in the vehicle of the party who will be performing the sampling.

9.8 Hazard Analyses

The following table is assembled to describe the various potential hazards associated with each activity/task to be performed. Personal protective equipment usage (Section 9.12) and work practices (Section 9.10) are established to reduce these potential hazards.

Act. No.	Job Task	Mech.	Elect.	Chem.	Temp.	Acoust.	Radio-Active	O ₂ Deficiency, Confined Space	Bio-Hazard
1	Sampling GW Wells	Equipment Handling	NE	Solvents Potentially in Soils & GW	Cold/Stress	NE	NE	NE	Rodents

NE = Not Expected

9.9 Hazard Mitigation

Procedures to Follow:

Procedures that will be used to minimize hazards identified on-site are listed below. The applicable activity number(s) is shown next to the procedure to mitigate the hazard. Activity numbers are as follows:

Activity Number

1

Job Task

Sampling Groundwater Wells

Hazards not presently applicable or anticipated to ever become applicable on-site are identified by N/A.

Activity Number

N/A

1

Procedures to Mitigate Hazards

1. Mechanical Hazards

Do not stand near backhoe buckets and earthmoving equipment.

Verify that all equipment is in good condition.

N/A

Do not stand or walk under elevated loads or ladders.

N/A

Do not stand near unguarded excavations or trenches.

N/A

Do not enter excavations or trenches more than 5 feet deep that are not properly guarded, shored, or sloped.

1

Consult the Designated Health and Safety Officer (DHSO) if other mechanical hazards exist.

1

Use care when handling or moving equipment.

2. Electrical Hazards

N/A

Locate and mark buried utilities before drilling.

Utilities located by NSW on _____.

N/A

Maintain at least a 10 foot clearance from overhead power lines.

N/A

Contact the utility company for information regarding minimum clearance from high-voltage power lines.

N/A

If unavoidably close to buried or overhead power lines, have power turned off, with circuit breaker locked and tagged or have the local utility company mask the wires.

N/A

Properly ground all electrical equipment.

N/A

Avoid standing in water when operating electrical equipment.

N/A

If equipment must be connected by splicing wires, be sure all connections are properly taped.

N/A

Be familiar with specific operating instructions for each piece of equipment.

N/A

Cease drilling during electrical storms.

1

Seek cover in the event of an electrical storm or tornado.

3. Chemical Hazards

1

Use PPE indicated in Section 9.12.

N/A

Conduct direct-reading air monitoring to evaluate respiratory and explosion hazards (list instrument, action level, monitoring location, and action to be taken in Section 9.11).

1

Consult the NSW Health and Safety Department for personal air monitoring.

N/A

Locate underground pipelines before drilling.

1

Do not smoke, except in designated areas. Avoid using equipment with spark ignitions to limit the potential of a fire or explosion.

N/A

Use fans to disperse airborne contaminants at the work site. No sparking or open flame equipment will be permitted inside the Exclusion Zone if there is a potential of reaching the Lower Explosive Limit (LEL) of contaminants present at the site.

4. Temperature Hazards

a. Heat Stress

N/A

When the temperature exceeds 70°F, take frequent breaks in shaded areas. Unzip or remove coveralls during breaks. Have cool water or electrolyte replenishment solution available. Drink small amounts frequently to avoid dehydration. Count the pulse rate for 30 seconds as early as possible in the rest period. If the pulse rate exceeds 110 beats per minute at the beginning of the rest period, shorten the work cycle by one-third.

b. Cold Stress

1

Wear multi-layer cold-weather clothing. The outer layer should be wind-resistant fabric.

1

Limit total work time in 0°F to —30°F to four hours. Alternate one hour in and one hour out of the low-temperature area. Below —30°F, consult the DHSO.

1

Drink warm fluid. Provide warm shelter for resting. Use the buddy system. Avoid heavy sweating. If inner layers of clothing become wet, they should be replaced.

5. Acoustical Hazards

N/A

Use earplugs or earmuffs when noise prevents conversation in a normal voice at a distance of 3 feet.

6. O₂ Deficiency in Confined Spaces

N/A

Confined spaces include trenches, pits, sumps, elevator shafts, tunnels, or any other area where circulation of fresh air is restricted or ability to readily escape from the area is restricted. Consult the NSW Health and Safety Department before entering a confined space.

Obtain a permit for confined space entry.

N/A

Monitor Oxygen (O₂) and organic vapors before entering. If the following values are exceeded, do not enter:

- O₂ less than 19.5 percent or greater than 25 percent.
- Total hydrocarbons greater than 5 parts per million (ppm) above background, if all air contaminants are not identified.
- Concentrations of specific contaminants exceeding action levels if all air contaminants are identified.

N/A

Monitor O₂ and organic vapors continuously while inside a confined space. If Threshold Limit Values (TLV) cited in Appendix A are exceeded, evacuate immediately. Record instrument readings.

N/A

At least one person capable of pulling workers from the confined space must be on standby outside the confined space. The observer must be trained in cardiopulmonary resuscitation (CPR) and first aid.

N/A

Use portable fans or blowers to introduce fresh air to confined spaces whenever respirator use is required.

N/A

Work involving the use of flame, arc, spark, or other source of ignition is prohibited in a confined space.

7. O₂ Deficiency in Impoundments

N/A

Use floatation devices for pond/lagoon sampling. Use a flat-bottomed boat, which must be connected to land via a rope.

N/A

All occupants of the boat must wear life preservers. Floating seat cushions will not be substituted.

N/A

Personnel will limit movement while afloat. If movement is unavoidable, occupants will stay as low as possible while moving. Under no circumstances are personnel to stand upright while afloat.

8. Radiation Hazards

N/A

If the radiation meter indicates 2 milliroentgen per hour (mR/hr) or more, leave the area and consult the NSW Health and Safety Department.

N/A

The operator of the nuclear density gauge must have appropriate training.

9. Biohazards

N/A

Learn to recognize and avoid contact with poison oak or poison ivy.

N/A

Do not touch infectious waste.

<u>1</u>	Do not approach or agitate rabid animals.
<u>N/A</u>	Avoid breathing dust in dry desert or central valley areas (valley fever).
<u>1</u>	Use insect repellant to avoid contact with ticks, mosquitoes, and other insects (disease carriers or poisonous), as necessary.
<u>N/A</u>	Do not touch refuse suspected of being from a biological or animal laboratory.
<u>N/A</u>	If possible, avoid contact with poisonous snakes or other reptiles by quietly walking away. If bitten, seek medical assistance immediately.

9.10 Air Monitoring

Action Levels/Environmental Surveillance Program

This section describes instruments and procedures that will be used for project air-monitoring activities. It may not be necessary to perform all of these air-monitoring activities at the NSW site. Decisions regarding air-monitoring activities will be made by the Site Safety Officer. Initial plans are to screen for vapors with PID only.

1. **DUSTS AND PARTICLES:** The Site Safety Officer will observe site activities to determine if there is a potential for overexposure to airborne metals or miscellaneous dusts. If monitoring is required, full-shift and short-term samples will be obtained for each job class according to 29 CFR 1910.120 (c) and (h) using appropriate sampling filters and personal sampling pumps. Pumps will be calibrated at the appropriate sampling rate before and after sampling. Sample collection and laboratory analysis will be conducted according to appropriate National Institute of Occupational Safety and Health (NIOSH), OSHA or American Industrial Hygiene Association (AIHA) methods. Sample media will be submitted to an AIHA accredited laboratory which participates in the NIOSH Proficiency Analytical Testing (PAT) quality assurance program. Sample results will be compared with OSHA PELs and ACGIH-TLVs. If sample results exceed concentrations which are one-half these limits, controls will be established to reduce exposures to one-half established limits. Compliance will be verified by additional air sampling.
2. **GASES AND VAPORS:** A Photoionization Detector (PID) will be used to monitor breathing zone concentrations of volatile organic compounds (VOCs). Calibration of monitoring equipment will be performed daily before start-up of work. Calibration gas to be used will be specific to the instrument per manufacturer instructions.

Action levels for known contaminants should be based on the PEL or TLVs of the contaminants. Action levels for unknown contaminants are based on the following:

<u>Instrument Reading for One Minute</u>	<u>Action</u>
Background	Level D
Above background to <5 ppm above background	Level C
6 - <500 ppm above background	Level B
500 ppm above background	Level B - leave area, upgrade to Level A
500 - 1000 ppm above background	Level A

Background samples should be taken either upwind or crosswind at least 50 feet from the perimeter of the landfill or nearest monitoring well.

9.11 Required PPE and Related Safety Equipment

1. Reference Levels of PPE

Level D PPE

Cloth coveralls/field clothes/cloth gloves

Nitrile gloves

Safety glasses

Steel-toed chemical-resistant boots or leather work boots
(use of butyl rubber over boots is dependent on site conditions
and the likelihood of working in wet areas)

Hardhat

Foam earplugs (when necessary)

Modified Level D PPE

Tyvek or Saranex coveralls

Inner nitrile gloves and outer neoprene gloves

Hardhat with faceshield

Safety glasses

Steel-toed chemical-resistant boots (with butyl rubber over boots if using leather work boots)

Foam earplugs (when necessary)

Note: For Modified Level D PPE the protective outer clothing is a Tyvek or Saranex one-piece coverall. Use of an air-purifying respirator with this suit (along with the other PPE listed for Modified Level D PPE) will constitute Level C PPE.

Level C PPE

Tyvek or Saranex coveralls

Inner nitrile gloves and outer neoprene gloves

Hardhat with faceshield

Safety glasses

Steel-toed chemical-resistant boots (with butyl rubber over boots if using leather work boots)

Foam earplugs (when necessary)

Full-face or half-face air-purifying respirator⁽¹⁾ with organic vapor/acid cartridges

Level B PPE

If breathing zone concentrations of unknown volatile organic compounds (VOCs) equal or exceed 6 ppm as measured by a photoionization detector (PID), Level B PPE will be used. This will consist of a hooded Saranex suit, self-contained breathing apparatus (SCBA), inner and outer gloves, steel-toed chemical-resistant boots, and over boots.

2. Required PPE by Task:

PPE that should be used for each task is as follows:

<u>Task</u>	<u>Protection Level</u>
1 Well Sampling	Level D - with potential for upgrade to level C as a result of on-site monitoring

⁽¹⁾ The use of a respirator is dependent on sustained (2 minutes) organic chemical concentrations in the breathing zone greater than background and less than 5 ppm as determined by PID monitoring (see Section 11.0). Use of a respirator will constitute Level C PPE.

9.12 Decontamination and Disposal Procedures

1. Equipment Decontamination:

Sampling equipment will be washed in a residue-free detergent (such as Alconox, Liquinox, TSP, etc.) and rinsed in tap water and deionized water between wells.

2. PE Decontamination:

PE decontamination will be achieved by using a soap solution/brushes with a water rinse. Used disposable PPE will be disposed of in waste drums as described below.

3. Investigation-Derived Material Disposal

Collection of decontamination fluids will not be required.

9.13 Training

1. Updating Site Safety Training

All site personnel will receive training on the scope of work and hazard prevention prior to beginning site work. Site Safety Training for remediation and project management personnel shall be updated to reflect changes on-site. Information contained in updated training shall include:

- New contaminants and soil levels;
- Health and safety hazards;
- Soil and atmospheric sampling procedures;
- Protective gear; and
- Decontamination of personnel, personal protective equipment and excavation equipment.

2. Employee Education and Training

All operational employees participated in routine health and safety education and training programs. These programs are designed to provide employees with a thorough knowledge of hazardous materials, health and safety hazard potentials and compliance with Federal OSHA 29 CFR 1910.120(e): 40 hour initial instruction, 8 hours annual refresher training and supervisor's additional 8 hour specialized training. As a minimum, this training includes the following:

- General Safety Rules
- Basics of Chemistry
- Basics of Toxicology/Physiology
- Hazardous Materials (types/characteristics)
- Hazard Communication Information
- Respiratory Protection
- Respirator Training
- Chemical Protective Clothing
- Decontamination Procedures/Personal Hygiene
- Fire Prevention/Protection
- First Aid/CPR

1. Training and Medical Records:

2. Project Personnel List and Safety Plan Distribution Record

All project employees must sign the master copy of this document, indicating they have read and understand it. Copies of this document must be made available for their review and readily available at the job site.

[illegible]

b. Contractors and Subcontractors

Copies of this document will be provided to contractors and subcontractors who may be affected by activities addressed herein. All contractors and subcontractors must comply with this document and applicable OSHA, EPA and local government rules and regulations.

LOG OF CONTRACTOR AND SUBCONTRACTOR PROJECT PERSONNEL

Company Name	Contact Person	Date Distributed

3. Health and Safety Meetings:

All project personnel must receive initial health and safety orientation. Thereafter, a brief tailgate safety meeting is required as deemed necessary by the Site Safety Officer or at least once every 10 working days.

HEALTH AND SAFETY MEETING LOG

Date	Topics	Name of Attendee	Company Name	Employee Initials

4. Visitors:

It is the policy that visitors must be familiar with the Site Safety Plan (SSP) and must furnish his/her own personal protective equipment. All visitors are required to sign the visitor log and comply with the SSP requirements. If the visitor represents a regulatory agency concerned with site health and safety issues, the site safety officer shall also immediately notify the NSW Health and Safety Department.

I acknowledge that I have reviewed the Site Safety Plan. I agree to comply with all SSP requirements, take full responsibility for my actions while present at this site, and in no way hold the operator responsible for my actions.

VISITOR LOG

Name of Visitor	Employed By	Date of Visit	Signature

9.15 Contingency/Emergency Information

1. Required Emergency Equipment Location

Safety shower/eyewash: Sampling contractor's Vehicle

First-aid kit: Sampling contractor's Vehicle

Fire extinguisher: Sampling contractor's Vehicle

Other: _____

2. Emergency Telephone Numbers

Ambulance: (815) 625-2500 ext. 2333

Police: _____

Fire department: (815) 625-2500 ext. 2222

Hospital: (815) 625-0400; Northwestern First Aid (815) 625-2500 ext. 2267

Illinois Emergency Management Agency: 1-800-782-7860

CHEMTREC: 1-800-424-9300

NSW contact: Dave Long Office (815) 626-2500 ext. 2451 Home Non responsive

Project Manager: _____ Office _____ Home _____

DHSO: _____ Office _____ Home _____

RHSO: _____ Office _____ Home _____

IEPA Project Mgr: _____ Office _____ Home _____

3. Standard Procedures for Reporting Emergencies

When calling for assistance in an emergency situation, the following information should be provided:

1. Name of person calling
2. Telephone number of caller's location
3. Name of person(s) exposed or injured
4. Nature of emergency
5. Actions already taken.

The recipient of the call should hang up first - not the caller.

4. Emergency Routes:

For critical emergencies - call ambulance.

See Plate 6 for route to hospital.

5. Contingency Plans:

In case of equipment fire: attempt to extinguish small fires with the fire extinguisher provided on-site. If the fire is judged uncontrollable contact the fire department at (815) 625-2500, ext. 2222.

In case of worker physical injury in hot zone: don same level protection as injured worker, remove to support zone, immobilize, contact ambulance.

In case of fire or imminent danger: signal evacuation by horn blast.

In case of PPE damage: Worker in hot zone should wave arm for assistance from co-worker or decon officer.

In case of PPE failure:

- a) physical damage to gloves, coveralls - decon contaminated area and replace equipment.
- b) respiratory protection failure - remove to support zone via decon zone. Assess worker condition, obtain medical assistance if necessary, replace equipment.

The need for evacuation is not anticipated, but will be signalled by a blast from a vehicle horn.

10.0 REPORTS

Semi-annually, NSW will submit a progress report documenting the CMI. The proposed table of contents for these reports is presented in Appendix F.

ok

11.0 DECOMMISSION AND DECONTAMINATION PLAN

The approved corrective measure does not require extensive intrusive or removal activities which may generate significant amounts of hazardous waste. The primary source of waste generated as a result of the implementation of the corrective measure will be groundwater removed from monitoring wells during purging. Groundwater removed as a result of this activity will be temporarily stored on-site in DOT drums. The analytical results of the first sampling round will be submitted to a waste hauler in order to obtain approval for removal of the material to a licensed disposal facility. Groundwater collected from subsequent sampling rounds will be temporarily stored on-site and removed by a licensed hauler after the completion of each round, if necessary.

REFERENCES

- Harding Lawson Associates, 1991. *Northwestern Steel and Wire Company, Pre-RCRA Landfill Corrective Measures Study*.
- Northwestern Steel and Wire Company, 1988, *Pre-RCRA Landfill Groundwater Sampling and Analysis Plan*, dated September 14, 1988, includes modifications performed November 1988.
- United States Environmental Protection Agency, 1993, Letter to Northwestern Steel and Wire Company concerning; *Permit Modification, ILD 005 263 157*, dated March 22, 1993.
- United States Environmental Protection Agency, 1986, *Test Methods for Evaluating Solid Waste, Physical-Chemical Methods*: SW-846 Third Edition.
- United States Environmental Protection Agency, 1988, *Corrective Action Plan, Interim Final*: EPA/530-SW-88-028.

TABLE

TABLE 1
Hazardous Property Information

Compound	Water Solubility	Specific Gravity	Vapor Density	Flash Point °F	Vapor Pressure	LEL UEL	TLV-TWA	IDLH Level	Hazard Properties	Acute Exposure Symptoms
Vinyl Chloride	0.1 %	N/A	2.15	None	2600mm @25°	3.6 % 33.0 %	1 ppm	None Established	CG	AIMNR
cis-1,2 Dichloroethylene (DCE)	0.4 %	1.27	3.34	36°F	400mm @41°F	9.7 % 12.8 %	200 ppm (790 mg/m³)	4000 ppm	C	BIM
Trichloroethylene	0.1 %	1.46	4.53	89.6°F	100mm @32°F	12.5 % 90 %	50 ppm (270 mg/m³)	1000 ppm	CG	BHIKLNOQ

Explanations and Footnotes:

Values for Threshold Limit Value-Time Weighted Average (TLV-TWA) are OSHA permissible Exposure Limits.

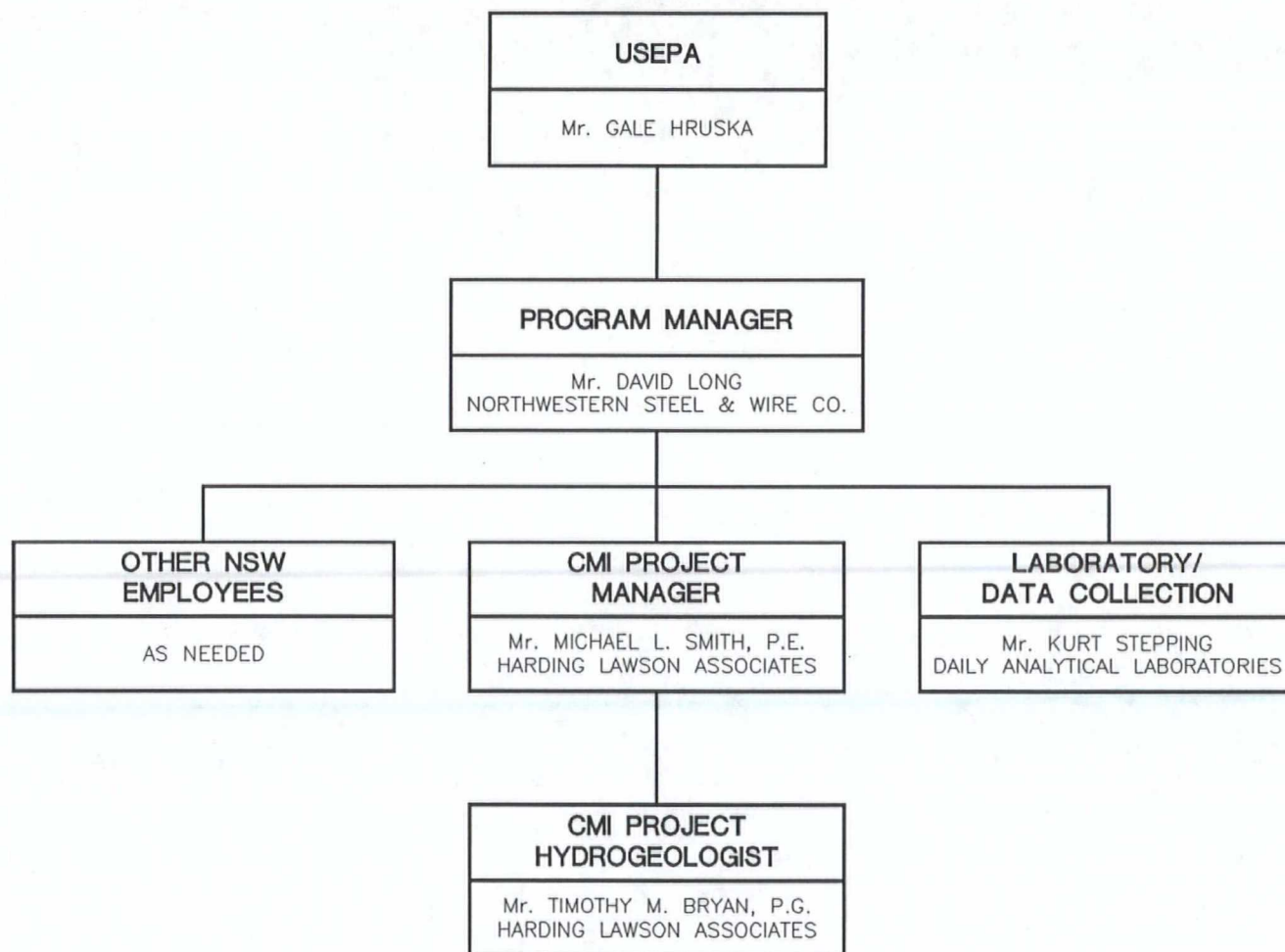
1. Hazardous Properties

A - corrosive
B - flammable
C - toxic
D - volatile
E - reactive
F - radioactive
G - carcinogen
H - infectious

2. Acute Exposure Symptoms

A - abdominal pain
B - central nervous system depression
C - comatose
D - convulsions
E - confusion
F - dizziness
G - diarrhea
H - drowsiness
I - eye irritation
J - fever
K - headache
L - nausea
M - respiratory system irritation
N - skin irritation
O - tremors
P - unconsciousness
Q - vomiting
R - weakness

PLATES



Harding Lawson Associates
Engineering and
Environmental Services

DRAWN
EWS

PROJECT NUMBER
12069,12.2

Project Management Organization Chart

Corrective Measures Implementation
Northwestern Steel & Wire Company
Sterling, Illinois 61081

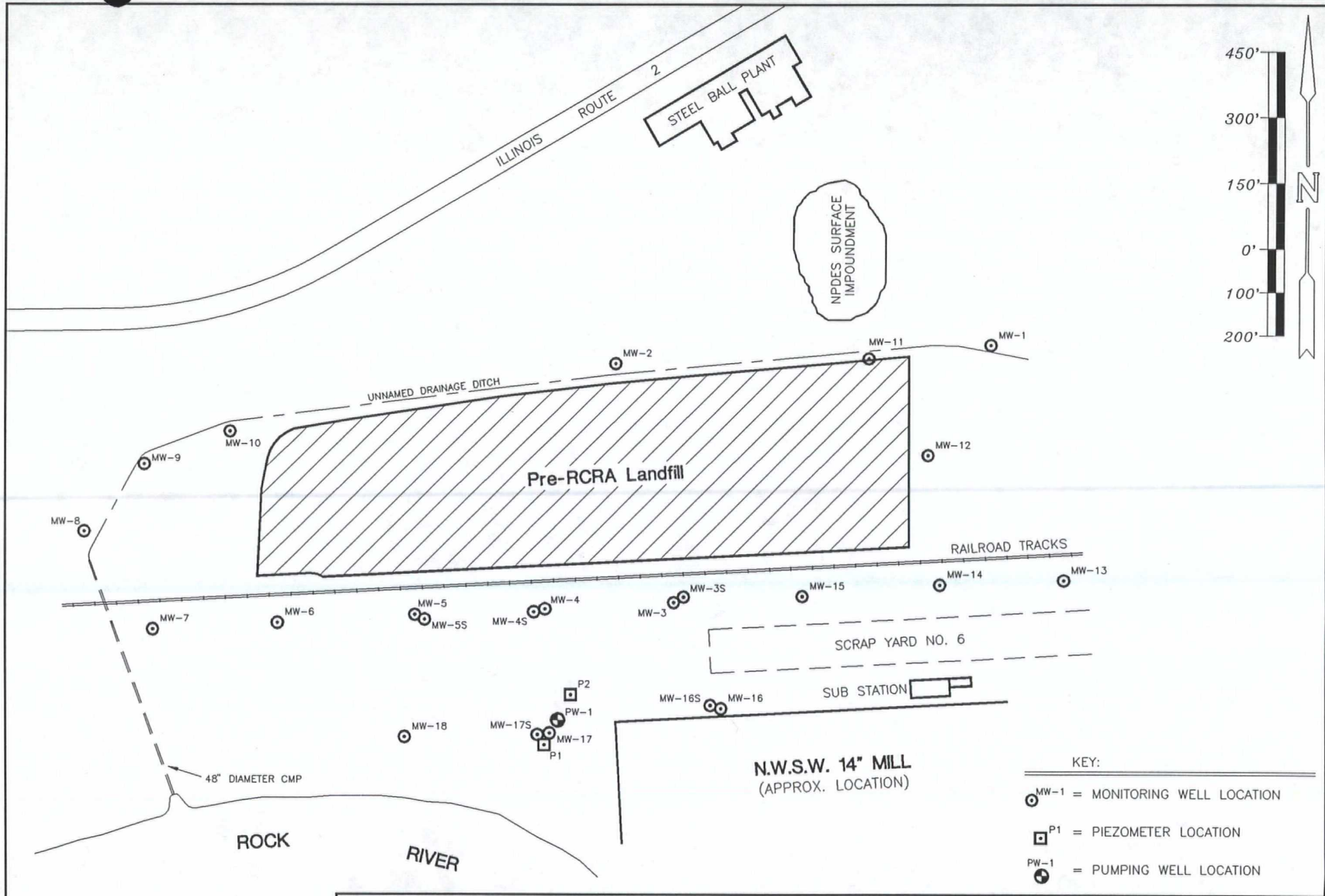
APPROVED

DATE
06/17/93

REVISED DATE

PLATE

2



Harding Lawson Associates
Engineering and
Environmental Services

DRAWN
EWS

PROJECT NUMBER
12069,12.2

APPROVED

Location of Wells and Piezometers
Pre-RCRA Landfill
Northwestern Steel & Wire Company
Sterling, Illinois 61081

DATE
06/17/93

REVISED DATE

PLATE

3

Job#	Task Name	Dates	1993												1994		
			MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR		
10	Effective Date of Permit Mod.	03/22/93 03/22/93	◇														
20	Submission of CMI Workplan	03/22/93 06/19/93															
30	Demo of Financial Assurance	03/22/93 07/19/93															
40	CMI Progress Report #1	09/15/93 09/21/93															
41	CMI Progress Report #2	03/15/94 03/21/94															

Explanation:

□ = Critical activity

◇ = Milestone



Harding Lawson Associates

Engineering and
Environmental Services

DRAWN
EWS

PROJECT NUMBER
12069,12.2

Proposed Schedule for Events with Fixed Dates PLATE

Northwestern Steel & Wire Company
121 Wallace Street
Sterling, Illinois

APPROVED

DATE
06/17/93

REVISED DATE

4

Job#	Task Name	Dates	1993												1994			
			JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR					
10	IEPA Approval of CMI Workplan	06/07/93 06/07/93	◇															
20	Implementation of CMI Workplan	06/07/93 07/06/93	▬															
30	Groundwater Sampling, 1st Qtr.	07/07/93 07/08/93	▮															
31	Groundwater Sampling, 2nd Qtr.	10/07/93 10/08/93	▲				▮											
32	Groundwater Sampling, 3rd Qtr.	01/07/94 01/08/94										▮						
33	Groundwater Sampling, 4th Qtr.	04/09/94 04/10/94															▮	

Explanation:

- ▬ = Critical activity
- ▬ = Delay
- ◇ = Milestone



Harding Lawson Associates
Engineering and
Environmental Services

DRAWN
EWS

PROJECT NUMBER
12069,12.2

**Proposed Schedule for Events with Dates
Subject to Change**

Northwestern Steel & Wire Company
Sterling, Illinois

APPROVED

DATE
06/17/93

REVISED DATE

PLATE

5

APPENDIX A

Permit Modification, Effective Date March 22, 1993



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

RECEIVED

APR - 7 1993

MAR 22 1993

REPLY TO THE ATTENTION OF:

HR-8J

Certified Mail # P943304589
Return Receipt Requested

Mr. Robert W. Martin
Vice President, Purchasing
Northwestern Steel and Wire Company
121 Wallace Street
Sterling, Illinois 61081

Re: Permit Modification
ILD 005 263 157

Dear Mr. Martin:

This letter is to inform you that the proposed modification to the Federal portion of your Resource Conservation and Recovery Act (RCRA) Permit, which was published on January 21, 1993, is hereby issued today, MAR 22 1993. It will remain valid until November 4, 1996, unless the permit is modified, revoked and reissued, or terminated pursuant to Title 40 of the Code of Federal Regulations (40 CFR), Sections 270.40 - 270.43. Failure to comply with any part of the permit modification may result in civil and/or criminal penalties.

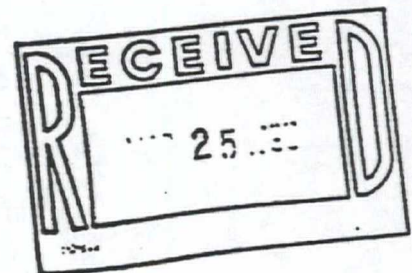
A copy of the permit modification conditions is enclosed with this letter. It should be appended to your RCRA permit. Unless review is requested under the provisions of 40 CFR 124.19 (copy enclosed), the permit modification shall become effective as of this date. The administrative appeal procedures must be completed prior to any action seeking judicial review.

Sincerely yours,


Norman R. Niedergang
Acting Associate Division Director
Office of RCRA

Enclosures: Permit Modification
Response to Comments
40 CFR 124.19
Environmental Appeals Board addresses

cc: L. Eastep, IEPA



§ 124.19 Appeal of RCRA, UIC, and PSD permits.

(a) Within 30 days after a RCRA, UIC, or PSD final permit decision (or a decision under § 270.29 to deny a permit for the active life of a RCRA hazardous waste management facility or unit) has been issued under § 124.15, any person who filed comments on that draft permit or participated in the public hearing may petition the Environmental Appeals Board to review any condition of the permit decision. Any person who failed to file comments or failed to participate in the public hearing on the draft permit may petition for administrative review only to the extent of the changes from the draft to the final permit decision. The 30-day period within which a person may request review under this section begins with the service of notice of the Regional Administrator's action unless a later date is specified in that notice. The petition shall include a statement of the reasons supporting that review, including a dem-

§ 124.19

onstration that any issues being raised were raised during the public comment period (including any public hearing) to the extent required by these regulations and when appropriate, a showing that the condition in question is based on:

(1) A finding of fact or conclusion of law which is clearly erroneous, or

(2) An exercise of discretion or an important policy consideration which the Environmental Appeals Board should, in its discretion, review.

(b) The Environmental Appeals Board may also decide on its initiative to review any condition of any RCRA, UIC, or PSD permit issued under this part. The Environmental Appeals Board must act under this paragraph within 30 days of the service date of notice of the Regional Administrator's action.

(c) Within a reasonable time following the filing of the petition for review, the Environmental Appeals Board shall issue an order granting or denying the petition for review. To the extent review is denied, the conditions of the final permit decision become final agency action. Public notice of any grant of review by the Environmental Appeals Board under paragraph (a) or (b) of this section shall be given as provided in § 124.10. Public notice shall set forth a briefing schedule for the appeal and shall state that any interested person may file an amicus brief. Notice of denial of review shall be sent only to the person(s) requesting review.

(d) The Environmental Appeals Board may defer consideration of an appeal of a RCRA or UIC permit under this section until the completion of formal proceedings under subpart E or F relating to an NPDES permit issued to the same facility or activity upon concluding that:

(1) The NPDES permit is likely to raise issues relevant to a decision of the RCRA or UIC appeals;

(2) The NPDES permit is likely to be appealed; and

(3) Either: (i) The interests of both the facility or activity and the public are not likely to be materially adversely affected by the deferral; or

40 CFR Ch. I (7-1-92 Edition)

(ii) Any adverse effect is outweighed by the benefits likely to result from a consolidated decision on appeal.

(e) A petition to the Environmental Appeals Board under paragraph (a) of this section is, under 5 U.S.C. 704, a prerequisite to the seeking of judicial review of the final agency action.

(f)(1) For purposes of judicial review under the appropriate Act, final agency action occurs when a final RCRA, UIC, or PSD permit is issued or denied by EPA and agency review procedures are exhausted. A final permit decision shall be issued by the Regional Administrator.

(i) When the Environmental Appeals Board issues notice to the parties that review has been denied:

(ii) When the Environmental Appeals Board issues a decision on the merits of the appeal and the decision does not include a remand of the proceedings; or

(iii) Upon the completion of remand proceedings if the proceedings are remanded, unless the Environmental Appeals Board's remand order specifically provides that appeal of the remand decision will be required to exhaust administrative remedies.

(2) Notice of any final agency action regarding a PSD permit shall promptly be published in the *FEDERAL REGISTER*.

(g) Motions to reconsider a final order shall be filed within ten (10) days after service of the final order. Every such motion must set forth the matters claimed to have been erroneously decided and the nature of the alleged errors. Motions for reconsideration under this provision shall be directed to, and decided by, the Environmental Appeals Board. Motions for reconsideration directed to the administrator, rather than to the Environmental Appeals Board, will not be considered, except in cases that the Environmental Appeals Board has referred to the Administrator pursuant to § 124.2 and in which the Administrator has issued the final order. A motion for reconsideration shall not stay the effective date of the final order unless specifically so ordered by the Environmental Appeals Board.

November 30, 1992

NOTICE

Please note the following changes for the Environmental Appeals Board, effective October 5, 1992.

SUBMISSIONS MADE BY MAIL SHOULD BE SENT TO THE FOLLOWING ADDRESS:

U.S. Environmental Protection Agency
Environmental Appeals Board (MC-1103B)
401 M Street, SW
Washington, DC 20460

SUBMISSIONS MADE BY HAND-DELIVERY (INCLUDING FEDERAL EXPRESS) SHOULD BE MADE AT THE FOLLOWING ADDRESS:

U.S. Environmental Protection Agency
Environmental Appeals Board
Westory Building
607 14th Street, NW
Suite 500
Washington, D.C. 20005

PHONE NUMBERS:

(202) 501-7060

FAX:

(202) 501-7580

RESPONSE TO COMMENTS REGARDING THE PROPOSED PERMIT MODIFICATION TO THE RESOURCE
CONSERVATION AND RECOVERY ACT (RCRA) PERMIT ISSUED TO NORTHWESTERN STEEL AND WIRE
COMPANY, STERLING, ILLINOIS - ILD 005 263 157

INTRODUCTION

On January 21, 1993, the United States Environmental Protection Agency (U.S. EPA) published in the Daily Gazette, Sterling, Illinois, a notice of its intent to modify the Federal portion of the RCRA permit originally issued to Northwestern Steel and Wire Company, 121 Wallace Street, Sterling, Illinois, (the Company) on September 30, 1987. The public notice requested comments on the U.S. EPA's intent to add certain permit requirements relating to the implementation corrective action measures to address continuing releases of hazardous constituents from the pre-RCRA Landfill at the facility, as well as offering the opportunity for a public hearing on the proposed modifications, if one was requested. The permit modification was proposed because the Company had completed a RCRA facility investigation, which demonstrated that there were releases of hazardous constituents occurring, followed by a corrective measures study, which investigated various measures to remediate the problem. A copy of the Statement of Basis for the modification, and the permit modification itself, were sent to the Sterling Public Library for public viewing. Comments were accepted through March 8, 1993. As no request for a public hearing was received, none was held.

This response to comments is issued pursuant to 40 Code of Federal Regulations (40 CFR) Section 124.17, which requires that any changes in a draft permit be specified along with reasons for the changes; that all significant comments be described and responded to; and that any documents cited in the response be included in the public record.

COMMENTS AND RESPONSES

No comments were received from either the Public or the Company.

CHANGES TO THE PERMIT

The Federal portion of the RCRA permit has been modified to incorporate the changes identified in the proposed draft permit modification. The provisions and wording in the final permit modification are identical to that in the proposed modification.

DETERMINATION

Based on a full review of all relevant data, the U.S. EPA has determined that the permit modification contains such terms and conditions necessary to protect human health and the environment.

FINAL PERMIT MODIFICATION TO
THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESOURCE CONSERVATION AND RECOVERY ACT PERMIT
FOR
NORTHWESTERN STEEL AND WIRE COMPANY
STERLING, ILLINOIS
ILD 005 263 157

III. CORRECTIVE MEASURES IMPLEMENTATION

A. REQUIREMENT TO IMPLEMENT CORRECTIVE MEASURES

1. Based on the Regional Administrator's review of the final reports for the RCRA Facility Investigation and Corrective Measures Study, submitted by the Permittee, as required in Condition II.d. of this permit, it is determined that there are continuing releases of hazardous constituents from the pre-RCRA Landfill.
2. As required by 40 CFR 264.101(a), the Permittee is hereby required to institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from the pre-RCRA Landfill.

B. IDENTIFICATION OF CONTAMINATED MEDIA AND HAZARDOUS CONSTITUENTS

For the purposes of this Corrective Measures Implementation (CMI), the medium of concern is the upper aquifer groundwater associated with the pre-RCRA Landfill. The hazardous constituents constituting the release are: (1) vinyl chloride, (2) cis-1,2 dichloroethylene (DCE), and (3) trichloroethylene (TCE).

C. CORRECTIVE MEASURES IMPLEMENTATION REMEDY

The remedy to be implemented is identified as the Limited Action Alternative, as described in the Permittee's Pre-RCRA Corrective Measures Study, submitted August 12, 1991, and as modified by the terms of this permit. The choice of remedy is based on the findings that the releases from the pre-RCRA Landfill to the Rock River are below levels posing significant threats to human health and the environment; there is no current or potential future use of groundwater between the pre-RCRA Landfill and the Rock River; and that natural attenuation of the hazardous constituents will achieve groundwater cleanup in a reasonable time. The major technical features of this remedy are:

1. Establishment of a periodic groundwater monitoring program, with provisions to trigger a reevaluation of the remedy if contaminant levels were to increase toward levels that would pose a threat to human health and the environment.
2. Establishment of controls to prevent intrusion into and disturbance of the soils above the pre-RCRA Landfill and the plume of contamination.
3. Establishment of controls to prevent the use of groundwater which has been affected by the contamination.

D. IDENTIFICATION OF POINT OF COMPLIANCE

1. A point of compliance is established for the purposes of monitoring the groundwater at the pre-RCRA Landfill in order to determine: (1) whether concentrations of hazardous constituents are increasing such that additional corrective measures are needed, and (2) to determine when cleanup levels have been met, so as to allow termination of corrective measures.
2. For the purposes of groundwater monitoring, the compliance point shall be the vertical plane along the boundary of the pre-RCRA Landfill, defined by Wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-11, MW-12 and MW-15.

E. GROUNDWATER CLEANUP STANDARDS

1. Cleanup standards for the hazardous constituents defining the release to the groundwater are the maximum contaminant levels (MCLs) for the following constituents identified in 40 CFR 141.61 (National Revised Primary Drinking Water Regulations: maximum contaminant levels for organic contaminants):

Vinyl Chloride	0.002 milligrams/liter	2
cis-1,2 Dichloroethylene	0.070	70
Trichloroethylene	0.005	5

2. The cleanup standards apply to groundwater at the point of compliance. The groundwater shall be deemed to have met the cleanup standards when there have been four (4) consecutive rounds of groundwater sampling (after the 1st year of sampling) at the compliance points identified in Condition III.D.2. and III.D.3. of this permit, with no sampling results exceeding 0.010 milligrams/liter for Vinyl Chloride and Trichloroethylene, and 0.070 milligrams/liter for cis-1,2 Dichloroethylene.

F. CORRECTIVE MEASURES IMPLEMENTATION WORKPLAN

1. Within 90 days of the effective date of this permit modification, the Permittee shall submit a corrective measures implementation (CMI) workplan. The requirements for the CMI workplan are found in Attachment III. to this permit.
2. The Regional Administrator shall approve, modify and approve, or disapprove and provide comments to the Permittee as to the corrections or modifications needed for the CMI workplan.

3. If modifications or corrections to the workplan are required of the Permittee, a response shall be submitted at a date to be specified by the Regional Administrator. Within 30 days of the Regional Administrator's approval of the CMI workplan, the Permittee shall begin implementation of the workplan according to the terms and schedule in the workplan.

G. DEMONSTRATION OF FINANCIAL ASSURANCE

1. Within 120 days of the effective date of this permit modification, the Permittee shall demonstrate financial assurance for completing the corrective measures and submit this information to the Regional Administrator. The demonstration shall conform to the requirements promulgated in 40 CFR Part 264 - Subpart H, for the closure and post-closure of RCRA-regulated hazardous waste management units.
2. The Permittee may incorporate this demonstration into its demonstration of financial assurance required for the closure and post-closure of the facility's RCRA-regulated hazardous waste management units.
3. The Permittee shall adjust its cost estimate for completion of the corrective measures annually to account for the effects of inflation and changes in operating and maintenance costs. If the Permittee incorporates this demonstration of financial assurance into that required for closure and post-closure of regulated units, then the Permittee may choose to submit the combined demonstration of financial assurance at the same time that it is required to submit the information on the regulated units. If the Permittee does not choose this option, it must submit the adjusted cost estimate within 30 days of the close of the facility's fiscal year.
4. The Permittee must revise and submit a revised cost estimate for completion of the corrective measures no later than 30 days after any modification to the CMI workplan is approved which will materially increase the cost of implementing the CMI.
5. The requirement to demonstrate financial assurance for completion of the CMI shall terminate upon notice from the Regional Administrator that corrective action has been successfully completed.

H. CORRECTIVE MEASURES IMPLEMENTATION - GROUNDWATER MONITORING

1. For the 1st year, the Permittee shall institute quarterly groundwater monitoring at the pre-RCRA Landfill and in the plume of contamination for the hazardous constituents identified in Condition III.B., according to the following schedule:
 - a. For the initial sampling, wells MW-2, MW-3, MW-4, MW-5, MW-6, MW-8, MW-11, MW-12, MW-15, MW-16, MW-17, and MW-18.
 - b. For the next three quarterly samplings, wells MW-3, MW-4, MW-5, MW-6, and MW-15.
2. The Permittee may schedule the sampling dates to correspond to those dates for which groundwater sampling will be done at the facility's active landfill permitted in the State of Illinois' portion of the RCRA permit.
3. If after one (1) year of groundwater sampling there has not been a triggering of the contingent corrective measures requirements identified in Condition III.I., the Permittee shall monitor the wells identified in Condition III.H.a. annually for the hazardous constituents identified in Condition III.B., and 6 months thereafter shall monitor the wells identified in Condition III.H.b. for the same constituents.
4. If a triggering of contingent corrective measures occurs, the Regional Administrator may require more extensive and/or frequent groundwater monitoring.
5. All solid and hazardous wastes generated as a result of these, or other activities related to the remedy shall be managed in conformance with all applicable State and Federal requirements.

I. TRIGGERING OF CONTINGENT CORRECTIVE MEASURES

1. This permit condition is established to determine when the results from a sampling event identified in Condition III.H. of this permit constitute an increase in the release of hazardous constituents from the pre-RCRA Landfill requiring the implementation of contingent corrective measures required in Condition III.J. of this permit.

2. For each sampling event, in addition to obtaining the concentration levels of the individual hazardous constituents in the wells required to be sampled, the Permittee shall calculate the mean value of the concentration of each individual constituent over the downgradient face of the pre-RCRA Landfill (i.e., the mean value of the concentrations found in wells MW-3, MW-4, MW-5, MW-6, and MW-15).
3. If analysis of the results of a sampling event indicate that both of the following conditions have occurred, then a triggering of contingent corrective measures is deemed to have occurred:
 - a. The concentration of a hazardous constituent in an individual well exceeds the following respective concentrations (in micrograms per liter):

<u>WELL</u>	<u>CONSTITUENT</u>	<u>CONCENTRATION</u>
MW-15	vinyl chloride	20
	cis-1,2 DCE	230
	TCE	10
MW-3	vinyl chloride	290
	cis-1,2 DCE	230
	TCE	10
MW-4	vinyl chloride	630
	cis-1,2 DCE	1260
	TCE	10
MW-5	vinyl chloride	180
	cis-1,2 DCE	190
	TCE	10
MW-6	vinyl chloride	20
	cis-1,2 DCE	10
	TCE	10

- b. The mean value of each individual hazardous constituent taken over the values in wells MW-15, MW-3, MW-4, MW-5, and MW-6 exceeds the following values (in micrograms per liter):

<u>CONSTITUENT</u>	<u>VALUE</u>
vinyl chloride	150
cis-1,2 DCE	280
TCE	10

4. If a triggering of contingent corrective measures has occurred, the Permittee must notify the Regional Administrator within 15 days of receipt of the sampling results. Upon request of the Permittee, the Regional Administrator may approve a resampling of the groundwater before implementing the provisions of Condition III.J.

J. IMPLEMENTATION OF CONTINGENT CORRECTIVE MEASURES

If a triggering of contingent corrective measures has occurred, or if the Regional Administrator determines based on information developed by the Permittee or other information, that compliance with a remedy requirement(s) is not technically practicable, or the Regional Administrator determines that additional remedial measures are required to ensure prompt completion, safety, effectiveness, protectiveness, or reliability of the remedy, then the Regional Administrator may modify the permit schedule to incorporate additional requirements necessary to protect human health and the environment.

K. ACTIVITIES INVOLVING THE SOILS AND FILL IN THE PRE-RCRA LANDFILL

1. The Permittee shall not perform or allow to be performed, within the boundary of the pre-RCRA Landfill, any activities which would disturb the soil and fill at a depth greater than 12 inches below the surface of the landfill, until sufficient sampling has been done to determine whether the soils and fill material to be affected by the activities either contain any of the hazardous constituents identified in Condition III.B. of the permit, or exhibit any hazardous characteristics identified in 40 CFR Part 261 - Subpart C; and whether these activities would have the potential of causing additional releases of hazardous constituents so as to affect human health or the environment.
2. The Permittee shall, at a minimum, post signs along the perimeter of the pre-RCRA Landfill warning that any activities which could disturb the soil in the landfill are prohibited without prior approval. If at any time, access to the facility by nonauthorized persons cannot be assured, then the Permittee must also construct and maintain a fence around the pre-RCRA Landfill of sufficient design to prevent access by nonauthorized persons.
3. The Permittee shall manage all solid and hazardous wastes generated as a result of activities involving the soils and fill in the pre-RCRA Landfill in conformance with all applicable State and Federal requirements.

4. No later than 60 days prior to the anticipated starting date of any activities involving the soils and fill at the pre-RCRA Landfill, the Permittee must submit to the Regional Administrator a report detailing (at a minimum); the proposed activity, the sampling effort, the results of the sampling analysis, an assessment of the impact of the proposed activity on the potential for releasing hazardous constituents to the environment in such amounts as to impact human health and the environment, and the facility's plan to manage any solid and hazardous wastes in conformance with all applicable State and Federal requirements.
5. The Regional Administrator shall review the report, and may as a result of the review, modify the permit schedule to incorporate measures necessary to ensure protection of human health and the environment.

L. RESTRICTIONS ON THE USE OF GROUNDWATER

Except for purposes of sampling, the Permittee shall not use, nor allow the use of groundwater in the aquifer immediately in contact with the soils and fill constituting the pre-RCRA Landfill and the identified plume of contamination downgradient from the landfill, without the expressed written approval of the Regional Administrator. The Regional Administrator may either disapprove such use, or impose such conditions as are necessary to protect human health and the environment.

M. REPORTING REQUIREMENTS

1. The Permittee shall submit semiannual progress reports, beginning 6 months from the effective date of this permit modification, which include, but are not limited to:
 - a. Summaries of progress of remedy implementation, including results of monitoring and sampling activities, progress in meeting media cleanup standards, and description of other remedial activities;
 - b. Problems encountered during the reporting period, and actions taken or proposed to resolve the problems;
 - c. Changes in personnel conducting or managing the remedial effort;
 - d. Project work for the next reporting period;
 - e. Copies of laboratory reports and field sampling reports;

- f. A summary of all triggering of contingent corrective measures during the reporting period, as provided for in Condition III.I., as well as all actions taken in response to the triggering event; and
 - g. Summaries of all contacts with representatives of the local community, public interest groups, and local and State government representatives on matters which are related or could affect the CMI.
2. The Permittee shall maintain at the facility all raw data generated, such as laboratory reports, drilling logs, and other supporting information generated from the remedial activities, for a period of three (3) years after the termination of the permit, including any reissued permits. This period may be extended by the Regional Administrator at any time and is automatically extended during the course of any enforcement action.

N. COMPLETION OF REMEDY

1. When the Permittee determines that the groundwater cleanup standards specified in Condition III.E. have been met, the Permittee shall request that the Regional Administrator terminate the corrective measure. At the same time, the Permittee shall submit a final corrective measures implementation report which shall contain, at a minimum:
 - a. A summary of the remediation activities;
 - b. A summary of the groundwater sampling results obtained over the course of the remediation;
 - c. A demonstration that the groundwater cleanup standards have been met; and
 - d. Any revisions to the Decommission and Decontamination Plan approved as part of the CMI workplan.
2. The Regional Administrator shall approve, approve with modifications, or disapprove and provide comments to the Permittee as to the corrections or modification needed for the final CMI report.
3. Within 30 days of the approval of the final CMI report, the Permittee shall begin implementing the approved Decommission and Decontamination Plan.

4. Within 60 days of completion of the decommission and decontamination activities, the Permittee shall provide a certification that the remedy has been completed in accordance with the terms of this permit. The certification must be signed by both the Permittee and an independent professional(s) skilled in the appropriate technical discipline(s).
5. Upon receipt of the certification, the Regional Administrator shall modify the permit to terminate the requirement for CMI, according to the procedures specified for permit modifications in 40 CFR 270.41.

O. CONTINUATION OF PERMIT

1. The provisions of this Federal portion of the RCRA permit shall continue in effect until either the Federal portion of the RCRA permit is reissued, or the termination provisions of Section III.N. are completed, even if the closure and post-closure requirements required of the operating RCRA-regulated units in the State portion of the permit have been completed, and the State portion of the RCRA permit terminated.
2. This permit may be transferred by the Permittee to a new owner or operator only after providing notice to the Regional Administrator, and only if the permit is modified, or revoked and reissued, pursuant to 40 CFR 270.40(b), 270.41(b)(2), or 270.42(a). Before transferring ownership, the Permittee shall notify the new owner or operator in writing of the requirements of this permit, and shall provide it with a copy of this permit.

P. SCHEDULE OF COMPLIANCE

<u>Requirement</u>	<u>Due Date</u>
Submission of CMI workplan	90 days after effective date of permit modification
Response to comments on CMI workplan	To be determined by Regional Administrator
Implementation of CMI workplan	Within 30 days of approval of the workplan
Demonstration of financial assurance	120 days after effective date of permit modification

Update of financial assurance

When required by State portion
of permit, or within 30 days of
close of facility's fiscal year

Notification of triggering of
contingent corrective measures

Within 15 days of discovery

Notification of proposed activity
involving soils and fill in
pre-RCRA Landfill

60 days prior to anticipated
starting date

✓ CMI progress reports

Beginning 6 months from the
effective date of the permit
modification, and every 6 months
thereafter

Request for termination of CMI
and submission of final CMI report

Permittee's determination

Submission of corrected/revised
CMI final report

Determined by Regional
Administrator

Implementation of Decommission
and Decontamination Plan

30 days after approval of
final CMI report

Certification of decommission and
decontamination

Within 60 days of completion of
decommission and decontamination

ATTACHMENT III.

SCOPE OF WORK FOR CORRECTIVE MEASURES IMPLEMENTATION

SCOPE OF WORK FOR CORRECTIVE MEASURES IMPLEMENTATION
FOR THE PRE-RCRA LANDFILL

AT

NORTHWESTERN STEEL AND WIRE COMPANY
STERLING, ILLINOIS
ILD 005 263 157

I. PURPOSE

The purpose of this Corrective Measures Implementation (CMI) program is to design, construct, operate, maintain, and monitor the performance of the corrective measures selected to protect human health and the environment. The Permittee will furnish all personnel, materials, and services necessary for the implementation of the corrective measures.

II. CORRECTIVE MEASURES IMPLEMENTATION PROGRAM PLAN

- A. The Permittee shall prepare a CMI Program Plan. This plan shall consist of a Program Management Plan and a Community Relations Plan.
- B. It may be necessary to revise these plans as the CMI progresses because of unanticipated problems. If substantive changes to the CMI Program Plan are required, the Permittee shall submit the changes to the Regional Administrator within 30 days of the anticipated implementation of the changes. The Regional Administrator shall approve the changes, modify and approve the changes, or disapprove and provide comments to the Permittee as to the corrections or modifications needed for the approval of the changes to the Plan.
- C. The Permittee shall prepare a Program Management Plan which will document the overall management strategy for performing the design, construction, operation, maintenance and monitoring of the corrective measures. The plan shall also document the qualifications, responsibility, and authority of all organizations and key personnel involved with the implementation, including contractor personnel.
- D. The Permittee shall prepare a Community Relations Plan for the dissemination of information to the public regarding investigational activities and results.

III. CORRECTIVE MEASURES DESIGN

- A. The Permittee shall submit as-built construction plans and specifications for the already constructed groundwater monitoring wells to be used in CMI.

- B. The Permittee shall provide construction plans and specifications for the system to be used to prevent unauthorized disturbance of the soil and fill in the pre-RCRA Landfill, as required in Condition III.K.2. of the permit modification.

IV. OPERATION AND MAINTENANCE PLAN

- A. The Permittee shall prepare an Operation and Maintenance (O&M) Plan to cover both the implementation and maintenance of the corrective measures.
- B. The O&M Plan shall be composed of the following elements:
 - 1. Description of tasks for operation;
 - 2. Description of tasks for maintenance;
 - 3. Schedule showing frequency of each O&M task;
 - 4. Description of potential operating problems and anticipated remedies;
 - 5. Safety Plan; and
 - 6. Records and reporting mechanisms, including:
 - a. Operating logs;
 - b. Records of operating costs;
 - c. Mechanism for reporting emergencies; and
 - d. Personnel and maintenance records.

V. GROUNDWATER SAMPLING AND ANALYSIS PLAN

- A. The Permittee shall prepare a Groundwater Sampling and Analysis Plan, incorporating the requirements of Conditions III.B. through III.E., III.H., and III.I. of the permit modification.
- B. The Groundwater Sampling and Analysis Plan shall incorporate a Data Collection Quality Assurance Plan meeting the requirements set forth in Section III.E. of Appendix I. of the Federal portion of the RCRA permit.
- C. The Groundwater Sampling and Analysis Plan shall incorporate a Data Management Plan meeting the requirements set forth in Section III.F. of Appendix I. of the Federal portion of the RCRA Permit.

VI. COST ESTIMATE

The Permittee shall develop an updated cost estimate for the purpose of assuring that the facility has the financial resources necessary to construct and implement the approved corrective measures. The cost estimate shall include both capital and operation/maintenance costs.

VII. PROJECT SCHEDULE

The Permittee shall develop a Project Schedule for construction and implementation of the corrective measures, which identifies timing for initiation and completion of all critical path tasks.

VIII. HEALTH AND SAFETY PLAN

The Permittee shall develop a Health and Safety Plan which addresses both activities to be performed in implementing the corrective measures, as well as any additional site-specific activities involving the pre-RCRA Landfill and groundwater which could have come in contact with hazardous constituents released from the pre-RCRA Landfill.

IX. REPORTS

The Permittee shall develop a reporting format in conformance with the periodic reporting requirements of Condition III.M. of the permit modification.

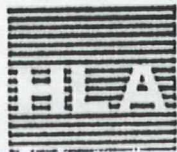
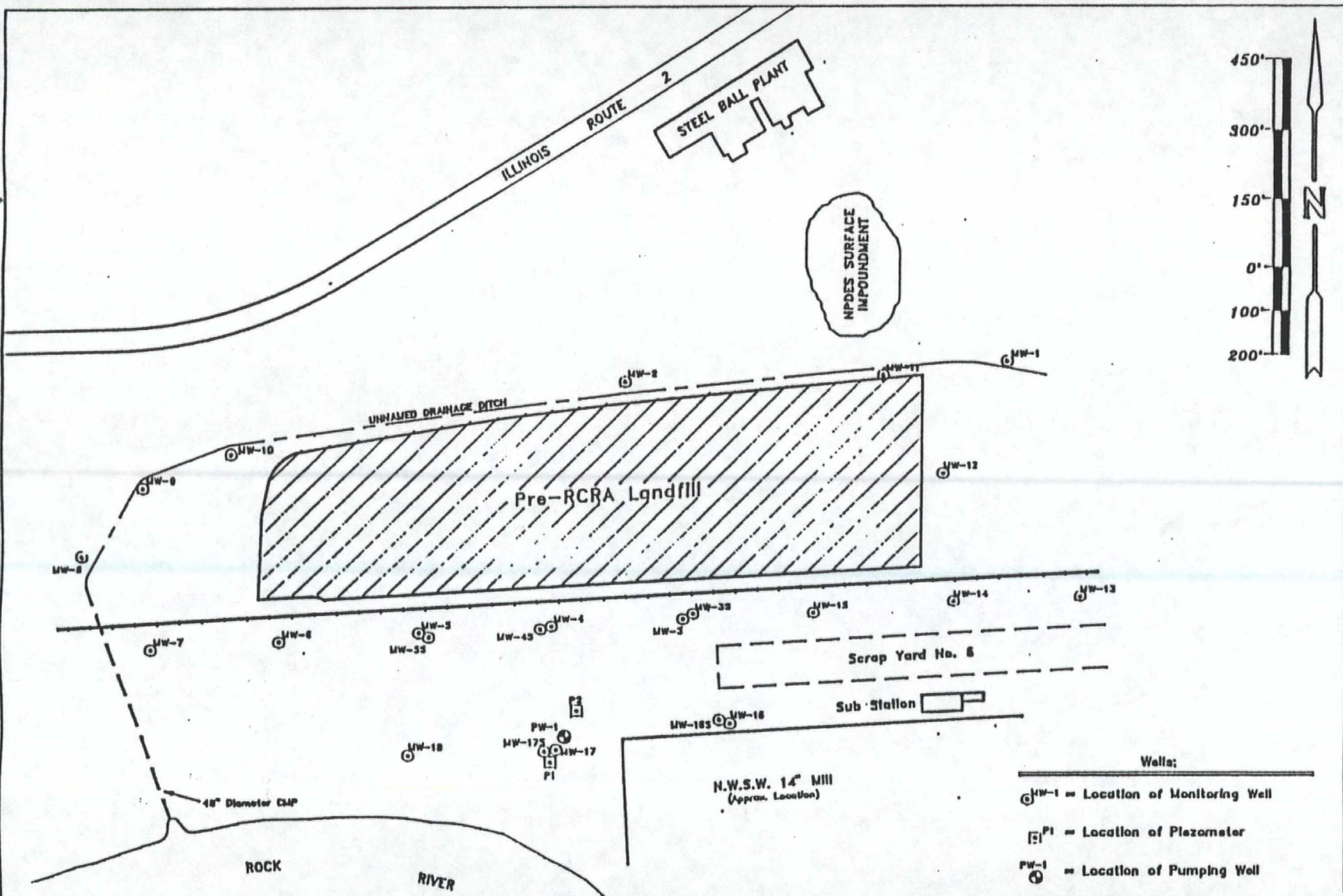
X. DECOMMISSION AND DECONTAMINATION PLAN

The Permittee shall develop a Decommission and Decontamination (D&D) Plan to address environmental concerns related to the termination of the corrective measures. The Plan should address, at a minimum, the following elements:

- A. A description of how D&D will be conducted so as to control, minimize, or eliminate to the extent necessary to protect human health and the environment, the escape of hazardous waste and/or hazardous constituents;
- B. A detailed description of the steps needed to remove or decontaminate all hazardous residues and contaminated components, equipment, structures, and soils, so as to meet the criteria identified in Condition IX.A.; and
- C. A schedule for completing the D&D activities.

ATTACHMENT IV.

GROUNDWATER MONITORING WELL DIAGRAM



Harding Lawson Associates
Engineering and
Environmental Services

DRAWN
FWS

JOB NUMBER
20480 025 23

APPROVED

Location of Wells and Piezometers
Northwestern Steel & Wire Company
Pre-RCRA Landfill
Sterling, Illinois

DATE
07/19/91

REVISED DATE
08/13/91

PLATE

1

APPENDIX B

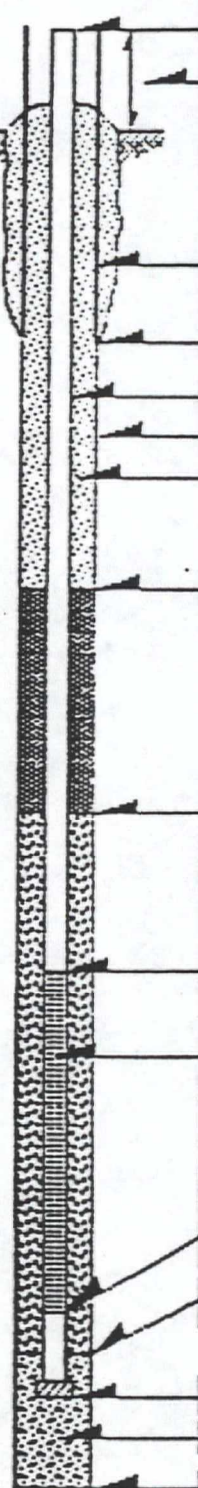
**As-Built Construction,
Plans for Groundwater Monitoring Wells**

PROJECT: PRE-RCRA LANDFILL
SITE: Northwestern Steel & Wire Co., Sterling, Illinois
COORDINATES: ---
DATE COMPLETED: AUGUST 3, 1988
SUPERVISED BY: GARY A EYERMAN

WELL NO: MW-2
AQUIFER: UNCONSOLIDATED
 OYERBURDEN
 SOILS

GROUND SURFACE
ELEVATION

SEE
ATTACHED
BORING LOG



Elevation of reference point _____
 Height of reference point above ground surface _____
 Depth of surface seal _____ 2.0 Ft
 Type of surface seal Concrete
 I.D. of surface casing 6 in x 6 in
 Type of surface casing Steel
 Depth of surface casing _____ 12 in
 I.D. of riser pipe 2.067 in
 Type of riser pipe PVC Sch. 40 TRI-LOC
 Diameter of borehole 8 in
 Type of filler None
 Elevation / depth of top of seal _____ / 2 Ft
 Type of seal 3/8 in dia. Bentonite Pellets

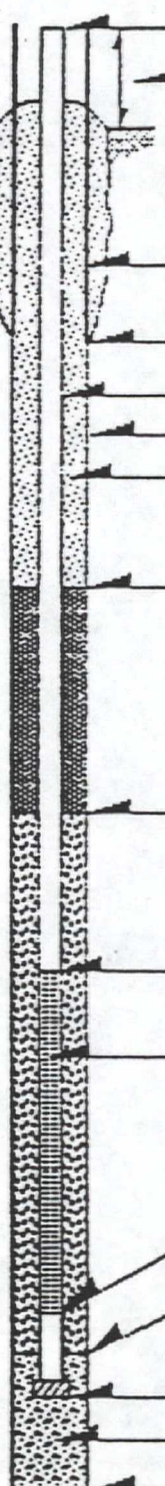
 Type of gravel pack #3 Muscatine Gravel
 Elevation / depth of top of gravel pack _____ / 4 Ft
 Elevation / depth of top of screen _____ / 5 Ft
 Description of screen 0.010 in
 Manufactured Slotted, Flush Threaded
 I.D. of screen section 2.067 in
 Elevation / depth of bottom of screen _____ / 15 Ft
 Elev. / depth of bottom of gravel pack _____ / 15 Ft
 Elev. / depth of bottom of plugged blank section _____ / 15 Ft
 Type of filler below plug #3 Gravel Pack
 Elevation of bottom of borehole (BOB) _____ / 15 Ft

PROJECT: PRE-RCRA LANDFILL
 SITE: Northwestern Steel & Wire Co., Sterling, Illinois
 COORDINATES: ---
 DATE COMPLETED: AUGUST 12, 1968
 SUPERVISED BY: GARY A EYERMAN

WELL NO: MW-3
 AQUIFER: UNCONSOLIDATED
 OVERBURDEN
 SOILS

GROUND SURFACE
 ELEVATION

SEE
 ATTACHED
 BORING LOG



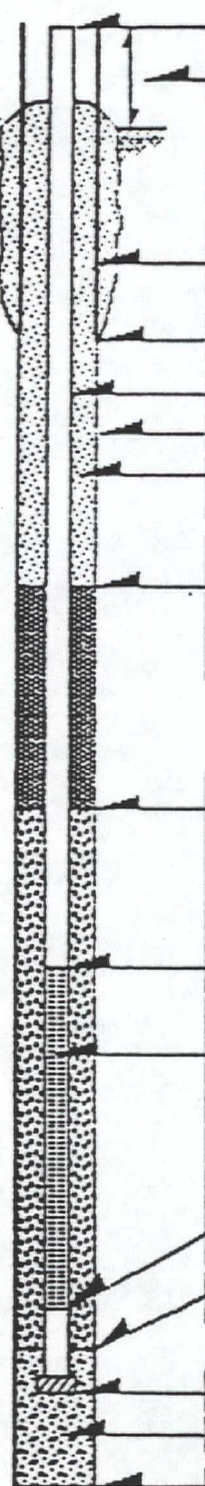
Elevation of reference point _____
 Height of reference point above ground surface _____
 Depth of surface seal _____ 1.0 Ft
 Type of surface seal Concrete _____
 I.D. of surface casing 8 in _____
 Type of surface casing Steel _____
 Flush mounted casing _____
 Depth of surface casing _____ 12 in
 I.D. of riser pipe 2.067 in _____
 Type of riser pipe PVC Sch 40 TRI-LOC _____
 Diameter of borehole 8 in _____
 Type of filler Cement - Bentonite Grout _____
 Elevation / depth of top of seal _____ / 30 Ft
 Type of seal Bentonite Slurry _____
 Type of gravel pack #3 Muscatine Gravel _____
 Elevation / depth of top of gravel pack _____ / 33 Ft
 Elevation / depth of top of screen _____ / 35 Ft
 Description of screen 0.010 in _____
 Manufactured Slotted Flush Threaded _____
 I.D. of screen section 2.067 in _____
 Elevation / depth of bottom of screen _____ / 45 Ft
 Elev. / depth of bottom of gravel pack _____ / 46.7 Ft
 Elev. / depth of bottom of plugged blank section _____ / 45 Ft
 Type of filler below plug #3 Gravel Pack _____
 Elevation of bottom of borehole (BOB) _____ / 46.7 Ft

PROJECT: PRE-RCRA LANDFILL
 SITE: Northwestern Steel & Wire Co., Sterling, Illinois
 COORDINATES: ---
 DATE COMPLETED: AUGUST 9, 1988
 SUPERVISED BY: GARY A EVERMAN

WELL NO: MW-4
 AQUIFER: UNCONSOLIDATED
 OVERBURDEN
 SOILS

GROUND SURFACE
 ELEVATION

SEE
 ATTACHED
 BORING LOG



Elevation of reference point _____

Height of reference point above
 ground surface _____

Depth of surface seal _____ 2.5 Ft

Type of surface seal Concrete _____

I.D. of surface casing 8 in _____

Type of surface casing Steel _____

Flush mounted casing _____

Depth of surface casing _____ 12 in

I.D. of riser pipe 2.067 in _____

Type of riser pipe PVC Sch. 40 TP1-100 _____

Diameter of borehole 8 in _____

Type of filler Cement - Bentonite Grout _____

Elevation / depth of top of seal _____ / 26 Ft

Type of seal Bentonite Slurry _____

Type of gravel pack #3 Muscatine Gravel _____

Elevation / depth of top _____ / 30 Ft

of gravel pack _____

Elevation / depth of top of screen _____ / 32 Ft

Description of screen 0.010 in _____

Manufactured Slotted, Flush Threads _____

I.D. of screen section 2.067 in _____

Elevation / depth of bottom of screen _____ / 42 Ft

Elev. / depth of bottom of gravel pack _____ / 42 Ft

Elev. / depth of bottom of plugged _____ / 42 Ft

blank section _____

Type of filler below plug #3 Gravel Pack _____

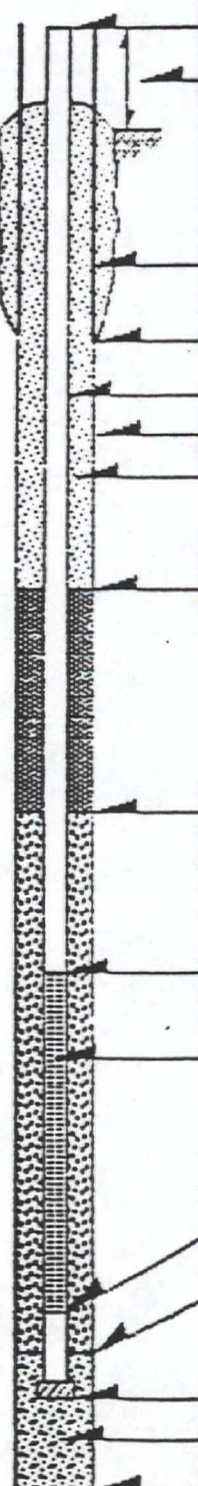
Elevation of bottom of borehole (BOB) _____ / 42 Ft

PROJECT: PRE-RCRA LANDFILL
 SITE: Northwestern Steel & Wire Co., Sterling, Illinois
 COORDINATES: ---
 DATE COMPLETED: AUGUST 10, 1988
 SUPERVISED BY: GARY A EYERMAN

WELL NO: MW-5
 AQUIFER: UNCONSOLIDATED
 OYERBURDEN
 SOILS

GROUND SURFACE
 ELEVATION

SEE
 ATTACHED
 BORING LOG



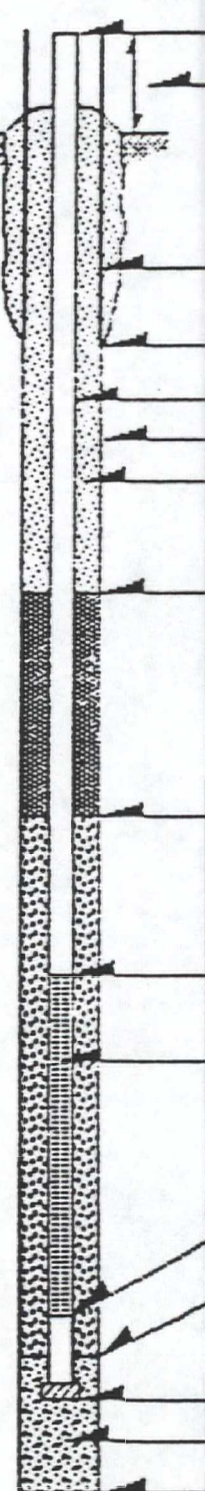
Elevation of reference point _____
 Height of reference point above ground surface _____
 Depth of surface seal _____ 1.5 Ft
 Type of surface seal Concrete _____
 I.D. of surface casing 8 in _____
 Type of surface casing Steel _____
 Flush mounted casing _____
 Depth of surface casing _____ 12 in
 I.D. of riser pipe 2.067 in _____
 Type of riser pipe PVC Sch. 40 TRI-LOC _____
 Diameter of borehole 8 in _____
 Type of filler Cement - Bentonite Grout _____
 Elevation / depth of top of seal _____ / 33 Ft
 Type of seal Bentonite Slurry _____
 Type of gravel pack #3 Muscatine Gravel _____
 Elevation / depth of top of gravel pack _____ / 37 Ft
 Elevation / depth of top of screen _____ / 39 Ft
 Description of screen 0.010 in _____
 Manufactured Slotted Flush Threaded _____
 I.D. of screen section 2.067 in _____
 Elevation / depth of bottom of screen _____ / 49 Ft
 Elev. / depth of bottom of gravel pack _____ / 49.6 Ft
 Elev. / depth of bottom of plugged blank section _____ / 49 Ft
 Type of filler below plug #3 Gravel Pack _____
 Elevation of bottom of borehole (BOB) _____ / 49.6 Ft

PROJECT: PRE-RCRA LANDFILL
SITE: Northwestern Steel & Wire Co., Sterling, Illinois
COORDINATES: ---
DATE COMPLETED: AUGUST 15, 1988
SUPERVISED BY: GARY A EVERMAN

WELL NO: MW-6
AQUIFER: UNCONSOLIDATED
 OYERBURDEN
 SOILS

GROUND SURFACE
ELEVATION

SEE
 ATTACHED
 BORING LOG



Elevation of reference point _____

Height of reference point above ground surface _____

Depth of surface seal _____ 4.0 Ft

Type of surface seal Concrete _____

I.D. of surface casing 8 in _____

Type of surface casing Steel _____

Flush mounted casing _____

Depth of surface casing _____ 12 in

I.D. of riser pipe 2.067 in _____

Type of riser pipe PVC Sch. 40 TPI-LOC _____

Diameter of borehole 8 in _____

Type of filler Cement - Bentonite Grout _____

Elevation / depth of top of seal _____ / 21 Ft

Type of seal Bentonite Slurry _____

Type of gravel pack #3 Muscatine Gravel _____ / 24 Ft

Elevation / depth of top of gravel pack _____

Elevation / depth of top of screen _____ / 26 Ft

Description of screen 0.010 in _____

Manufactured Slotted, Flush Threaded _____

I.D. of screen section 2.067 in _____

Elevation / depth of bottom of screen _____ / 36 Ft

Elev. / depth of bottom of gravel pack _____ / 36.6 Ft

Elev. / depth of bottom of plugged _____ / 36 Ft

blank section _____

Type of filler below plug #3 Gravel Pack _____

Elevation of bottom of borehole (BOB) _____ / 36.6 Ft

PROJECT: PRE-RCRA LANDFILL
SITE: Northwestern Steel & Wire Co., Sterling, Illinois
COORDINATES: ---
DATE COMPLETED: AUGUST 16, 1986
SUPERVISED BY: GARY A EYERMAN

WELL NO: MW-8

AQUIFER: UNCONSOLIDATED
 OYERBURDEN
 SOILS

GROUND SURFACE
ELEVATION

SEE
 ATTACHED
 BORING LOG

Please see attached
 Figure for repaired
 section details

Elevation of reference point	_____
Height of reference point above ground surface	_____
Depth of surface seal	6.5 Ft
Type of surface seal	Concrete
I.D. of surface casing	6 in x 6 in
Type of surface casing	Steel
Depth of surface casing	2 Ft
I.D. of riser pipe	2.067 in
Type of riser pipe	PVC Sch. 40 TRI-LOC
Diameter of borehole	6 in
Type of filler	Cement - Bentonite Grout
Elevation / depth of top of seal	/49.5 Ft
Type of seal	Bentonite Slurry
Type of gravel pack	#3 Muscatine Gravel
Elevation / depth of top of gravel pack	/52.5 Ft
Elevation / depth of top of screen	/54.5 Ft
Description of screen	0.010 in Manufactured Slotted, Flush Threaded
I.D. of screen section	2.067 in
Elevation / depth of bottom of screen	/64.5 Ft
Elev. / depth of bottom of gravel pack	/66.1 Ft
Elev. / depth of bottom of plugged blank section	/64.5 Ft
Type of filler below plug	#3 Gravel Pack
Elevation of bottom of borehole (BOB)	/66.1 Ft

MONITORING WELL
DOCUMENTATION FORM
NO. 11

Terracon

Project: Northwestern Steel & Wire Job No. 42895071
Pre-RCRA Wells Installation Date 7-19-89
Development Date 8-1-89

Stratum to be Monitored Ground Water

Depth Below Ground Surface That Monitored Stratum Was Encountered 3.0 to 14.1 feet

PURPOSE OF WELL:

☒ Monitor water quality for background purposes
☐ Monitor leachate quality within sanitary landfill
☐ Monitor groundwater quality in the direction of groundwater flow
☐ Other: Describe _____

LOCATION OF WELL:

Is the location of the monitoring point shown on a location diagram? yes

Where? _____

N/A

CONSTRUCTION DETAILS:

Boring Diameter (a) 8.25 inches
Casing Diameter (b) 2 inches I.D.
Casing Material PVC SCH 40
Screening length (c) 10' Screen Opening 0.01 inches
From Elevation (i) _____ to (j) _____
Ground Surface Elevation at Well (g) _____
Height of Well Head Above Ground (d) 2.5'
Depth of Well from Top of Pipe (e) 16.5'
Depth of Boring (m) 14.1'

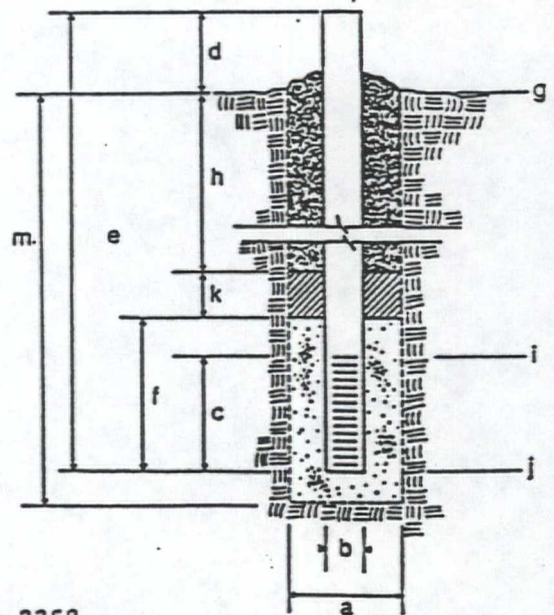
Backfill:

Type	Depth
<u>#3 Well Pack</u> (f) <u>11'</u>	
<u>1" Bentonite Pellets</u> (k) <u>1.5'</u>	
<u>Bentonite/Cement Grout</u> (h) <u>1.5'</u>	

Type of Well Cap Expandable (water tight)

Protector Pipe 6"x6" steel Lock type and number Master 3358

Remarks: _____



MONITORING WELL
DOCUMENTATION FORM
NO. 12

Terracon

Project: Northwestern Steel & Wire Job No. 42895071

Pre-RCRA Wells Installation Date 7-20-89

Development Date 7-31-89

Stratum to be Monitored Ground Water

Depth Below Ground Surface That Monitored Stratum Was Encountered 11.1 to 14.8 feet

PURPOSE OF WELL:

☐ Monitor water quality for background purposes

☐ Monitor leachate quality within sanitary landfill

☒ Monitor groundwater quality in the direction of groundwater flow

☐ Other: Describe _____

LOCATION OF WELL:

Is the location of the monitoring point shown on a location diagram? yes

Where? _____

N/A

CONSTRUCTION DETAILS:

Boring Diameter (a) 8.25 inches

Casing Diameter (b) 2 inches I.D.

Casing Material PVC SCH 40

Screening length (c) 10' Screen Opening 0.01 inches

From Elevation (i) _____ to (j) _____

Ground Surface Elevation at Well (g) _____

Height of Well Head Above Ground (d) 2.75'

Depth of Well from Top of Pipe (e) 17.5'

Depth of Boring (m) 14.75'

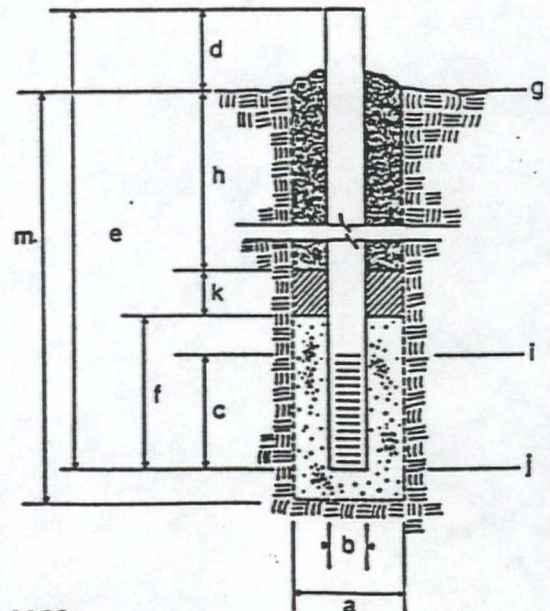
Backfill:

Type	Depth
<u>#3 Well Pack</u>	(f) <u>11.25'</u>
<u>1" Bentonite Pellets</u>	(k) <u>2.0'</u>
<u>Bentonite/Cement Grout</u>	(h) <u>1.5'</u>

Type of Well Cap Expandable (water tight)

Protector Pipe 6"x6" Steel Lock type and number Master 3358

Remarks: _____



MONITORING WELL
DOCUMENTATION FORM
NO. 15

Terracon

Project: Northwestern Steel & Wire Job No. 42895071

Pre-RCRA Wells Installation Date 7-29-89

Development Date 8-1-89

Stratum to be Monitored Ground Water

Depth Below Ground Surface That Monitored Stratum Was Encountered 11.5 to 25.5 feet

PURPOSE OF WELL:

☐ Monitor water quality for background purposes

☐ Monitor leachate quality within sanitary landfill

☒ Monitor groundwater quality in the direction of groundwater flow

☐ Other: Describe _____

LOCATION OF WELL:

Is the location of the monitoring point shown on a location diagram? yes

Where? _____

N/A

CONSTRUCTION DETAILS:

Boring Diameter (a) 8.25 inches

Casing Diameter (b) 2 inches I.D.

Casing Material PVC SCH 40

Screening length (c) 10' Screen Opening 0.01 inches

From Elevation (i) _____ to (j) _____

Ground Surface Elevation at Well (g) _____

Height of Well Head Above Ground (d) 0

Depth of Well from Top of Pipe (e) 24.5'

Depth of Boring (m) 25.5'

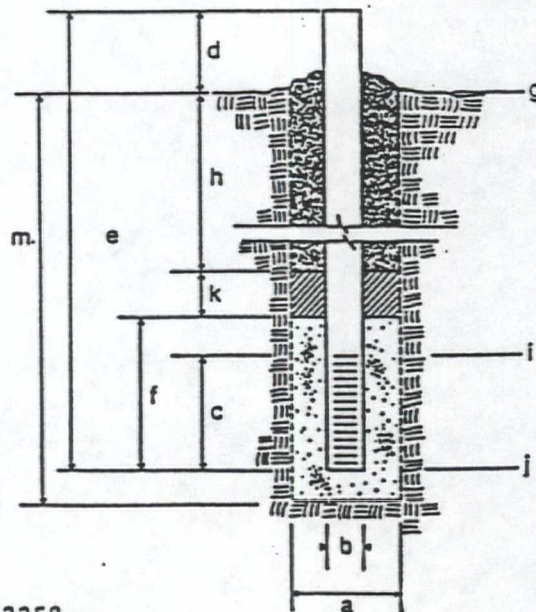
Backfill:

Type	Depth
<u>#3 Well Pack</u> (f) <u>14'</u>	
<u>1" Bentonite Pellets</u> (k) <u>2.5'</u>	
<u>Bentonite/Cement Grout</u> (h) <u>9.0'</u>	

Type of Well Cap Expandable (water tight)

Protector Pipe 12" Flushmount lock type and number Master 3358

Remarks: _____



MONITORING WELL
DOCUMENTATION FORM
NO. 16

Terracon

Project: Northwestern Steel & Wire Job No. 42895071

Pre-RCRA Wells

Installation Date 7-25-89

Development Date 8-1-89

Stratum to be Monitored Ground Water

Depth Below Ground Surface That Monitored Stratum Was Encountered 36.5 to 50.0

PURPOSE OF WELL:

☐ Monitor water quality for background purposes

☐ Monitor leachate quality within sanitary landfill

☒ Monitor groundwater quality in the direction of groundwater flow

☐ Other: Describe _____

LOCATION OF WELL:

Is the location of the monitoring point shown on a location diagram? yes

Where? _____

N/A

CONSTRUCTION DETAILS:

Boring Diameter (a) 8.25 inches

Casing Diameter (b) 2 inches I.D.

Casing Material PVC SCH 40

Screening length (c) 10' Screen Opening 0.01 inches

From Elevation (i) _____ to (j) _____

Ground Surface Elevation at Well (g) _____

Height of Well Head Above Ground (d) 0

Depth of Well from Top of Pipe (e) 49.5'

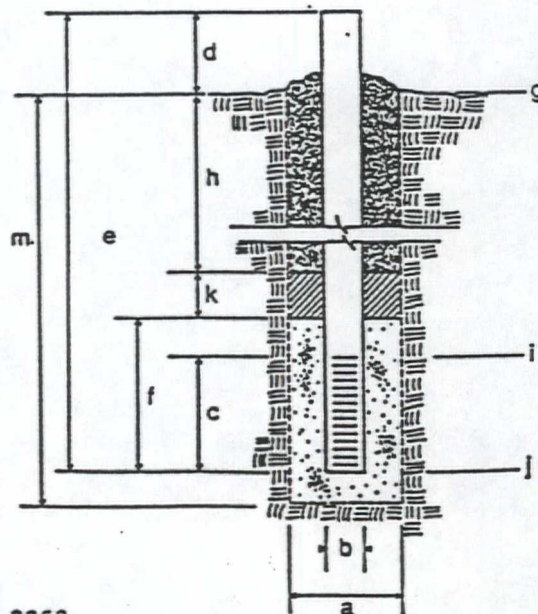
Depth of Boring (m) 50.0'

Backfill:

Type	Depth
<u>#3 Well Pack</u>	<u>(f) 13.5'</u>
<u>1" Bentonite Pellets</u>	<u>(k) 2.5'</u>
<u>Bentonite/Cement Grout</u>	<u>(h) 34.0'</u>

Type of Well Cap Expandable (water tight)

Protector Pipe 12" Flushmount Lock type and number Master 3358



Remarks: _____

MONITORING WELL
DOCUMENTATION FORM
NO. 17

Terracon

Project: Northwestern Steel & Wire Job No. 42895071

Pre-RCRA Wells

Installation Date 7-24-89

Development Date 8-1-89

Stratum to be Monitored Ground Water

Depth Below Ground Surface That Monitored Stratum Was Encountered 20.0 to 35.5 feet

PURPOSE OF WELL:

☐ Monitor water quality for background purposes

☐ Monitor leachate quality within sanitary landfill

☒ Monitor groundwater quality in the direction of groundwater flow

☐ Other: Describe _____

LOCATION OF WELL:

Is the location of the monitoring point shown on a location diagram? yes

Where? _____

N/A

CONSTRUCTION DETAILS:

Boring Diameter (a) 8.25 inches

Casing Diameter (b) 2 inches I.D.

Casing Material PVC SCH 40

Screening length (c) 10' Screen Opening 0.01 inches

From Elevation (i) _____ to (j) _____

Ground Surface Elevation at Well (g) _____

Height of Well Head Above Ground (d) 0

Depth of Well from Top of Pipe (e) 35.0

Depth of Boring (m) 35.5'

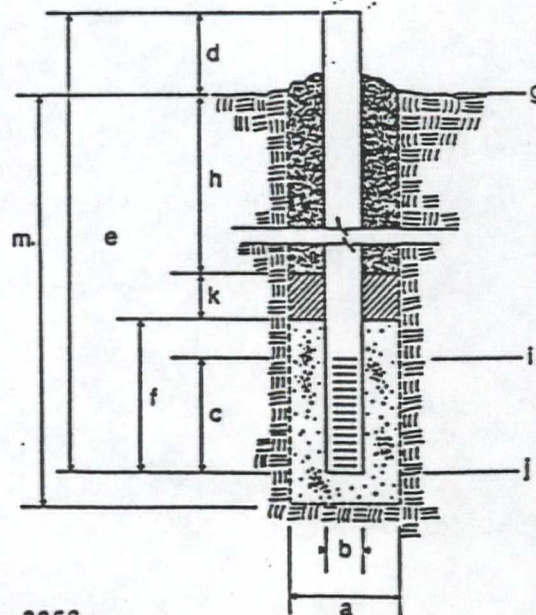
Backfill:

Type	Depth
<u>#3 Well Pack</u> (f) <u>15.5'</u>	
<u>1" Bentonite Pellets</u> (k) <u>2.5'</u>	
<u>Bentonite/Cement Grout</u> (h) <u>17.5'</u>	

Type of Well Cap Expandable (water tight)

Protector Pipe 12" Flushmount Lock type and number Master 3358

Remarks: _____



MONITORING WELL
DOCUMENTATION FORM
NO. 18

Terracon

Project: Northwestern Steel & Wire

Job No. 42895071

Pre-RCRA Wells

Installation Date 7-24-89

Development Date 8-1-89

Stratum to be Monitored Ground Water

Depth Below Ground Surface That Monitored Stratum Was Encountered 12.1 to 24.7 feet

PURPOSE OF WELL:

☐ Monitor water quality for background purposes

☐ Monitor leachate quality within sanitary landfill

☒ Monitor groundwater quality in the direction of groundwater flow

☐ Other: Describe _____

LOCATION OF WELL:

Is the location of the monitoring point shown on a location diagram? yes

Where? _____

N/A

CONSTRUCTION DETAILS:

Boring Diameter (a) 8.25 inches

Casing Diameter (b) 2 inches I.D.

Casing Material PVC SCH 40

Screening length (c) 10' Screen Opening 0.01 inches

From Elevation (i) _____ to (j) _____

Ground Surface Elevation at Well (g) _____

Height of Well Head Above Ground (d) 0

Depth of Well from Top of Pipe (e) 24.5

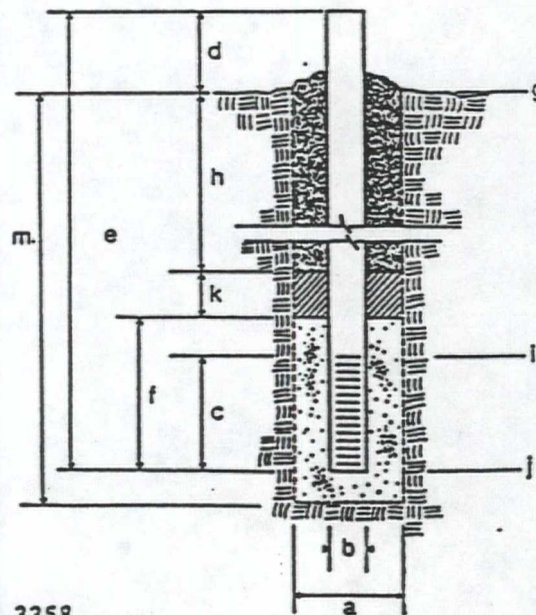
Depth of Boring (m) 24.7

Backfill:

Type	Depth
<u>#3 Well Pack</u>	(f) <u>12.6'</u>
<u>1/2" Bentonite Pellets</u>	(k) <u>2.2'</u>
<u>Bentonite/Cement Grout</u>	(h) <u>9.9'</u>

Type of Well Cap Expandable (water tight)

Protector Pipe 12" Flushmount Lock type and number Master 3358



Remarks: _____

APPENDIX C

Example Inspection Report Form

APPENDIX C
PRE-RCRA WASTE LANDFILL MONTHLY
INSPECTION REPORT FORM

Northwestern Steel & Wire Company
Sterling, Illinois

Date: ____ / ____ /19

Time: ____ AM/PM

Weather Conditions:

Temperature (°F): ____

Raining: No__ Yes__

Skies: clear__ partly cloudy__ cloudy__

Wind Conditions: none__ light__ moderate__ heavy__

Ground Conditions: dry__ wet__ frozen__

Operating Conditions:

Access Roads: dry__ wet__ muddy__ Erosion: No__ Yes__

Service Roads In Landfill: dry__ wet__ muddy__

Warning and hazard signs: Posted and legible? Yes__ No__

Do landfill berms appear in stable condition? Yes__ No__

Are there any visible signs of soil erosion? Yes__ No__

Is there any standing water visible in landfill cell? Yes__ No__

Is any wind dispersion of deposited wastes apparent? Yes__ No__

Are drainage ditches functioning properly? Yes__ No__

Are all monitoring wells in satisfactory condition? Yes__ No__

Comments or corrective actions required: Yes__ No__

Inspector's Name:

Printed _____ Signature: _____

APPENDIX D

Triggering of Contingent Corrective Measures

APPENDIX D

TRIGGERING OF CONTINGENT CORRECTIVE MEASURES

If a triggering of contingent corrective measures occurs, the Regional Administrator may require the implementation of more extensive and/or frequent groundwater monitoring as discussed below.

1. This permit condition is established to determine when the results from a groundwater sampling event discussed in subsection 2.1 of this document, constitutes an increase in the release of hazardous constituents from the pre-RCRA Landfill requiring the implementation of contingent corrective measures.
2. For each groundwater sampling event, in addition to obtaining (by Chemical analysis) the concentration levels of the individual hazardous constituents (vinyl chloride, cis-1,2 dichloroethylene [DCE], trichloroethylene [TCE]) in the wells required to be sampled. The mean value of the concentration of each individual constituent over the downgradient face of the pre-RCRA Landfill (i.e., the mean value of the concentrations found in wells MW-3, MW-4, MW-5, MW-6, and MW-15) shall be calculated.
3. If analysis of the results of a sampling event indicate that both of the following conditions have occurred, then a triggering of contingent corrective measures is deemed to have occurred:
 - a. The concentration of a hazardous constituent in an individual well exceeds the following respective concentrations (in micrograms per liter):

<u>Well</u>	<u>Constituent</u>	<u>Concentration</u>
MW-15	Vinyl chloride	20
	cis-1,2 DCE	230
	TCE	10
MW-3	Vinyl chloride	290
	cis-1,2 DCE	230
	TCE	10
MW-4	Vinyl chloride	630
	cis-1,2 DCE	1260
	TCE	10
MW-5	Vinyl chloride	180
	cis-1,2 DCE	190
	TCE	10
MW-6	Vinyl chloride	20
	cis-1,2 DCE	10
	TCE	10

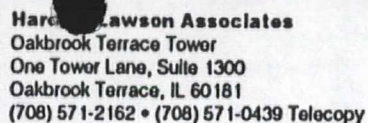
- b. The mean value of each individual hazardous constituent taken over the values in wells MW-15, MW-3, MW-4, MW-5, and MW-6 exceeds the following values (in micrograms per liter):

<u>Constituent</u>	<u>Value</u>
vinyl chloride	150
cis-1,2 DCE	280
TCE	10

4. If a triggering of contingent corrective measures has occurred, the Regional Administrator must be notified within 15 days of receipt of the sampling results. Upon request of the Permittee, the Regional Administrator may approve a resampling of the groundwater before implementing contingent corrective measures.

APPENDIX E

Example Chain-of-Custody Form



Lab: _____

Project Manager:_____

Recorder: _____

[illegible][illegible][illegible][illegible]

APPENDIX F

Table of Contents for Semi-Annual Report

**APPENDIX F
NORTHWESTERN STEEL AND WIRE COMPANY
PROPOSED TABLE OF CONTENTS
SEMI-ANNUAL PROGRESS REPORTS**

- 1.0 Introduction
 - Includes a brief description of all remediation activities
- 2.0 Groundwater Sampling
 - 2.1 Description of Sampling Procedures
 - 2.2 Presentation of Groundwater Data
 - 2.3 Trend Analysis of Groundwater Data
- 3.0 Problems Encountered
 - 3.1 Description of Problems Encountered
 - 3.2 Actions Taken to Resolve the Problem
- 4.0 Personnel Changes
- 5.0 Activities for the Next Reporting Period
 - 5.1 Description of Activities
 - 5.2 Schedule
- 6.0 Triggering of Contingent Corrective Measures
- 7.0 Community Relations Activities

APPENDICES

- | | |
|------------|---------------------------------------|
| Appendix A | Field Sampling Activities |
| Appendix B | Laboratory Analytical Reports |
| Appendix C | Log of Community Relations Activities |

DISTRIBUTION

CORRECTIVE MEASURES IMPLEMENTATION PLAN
NORTHWESTERN STEEL AND WIRE COMPANY
STERLING, ILLINOIS

June 21, 1993

COPY NO. ____

Copy No.

1 Original	U.S. Environmental Protection Agency	1,2,3
2 Copies	HR-8J Region 5 77 West Jackson Boulevard Chicago, Illinois 60604-3590 Attention: Norman R. Niedergang	
3 copies	Northwestern Steel and Wire Company 121 Wallace Street Sterling Illinois 61081 Attention: David E. Long	4,5,6
5 copies	Harding Lawson Associates	7,8,9,10,11

QUALITY CONTROL REVIEWER



Michael L. Smith, P.E.
Managing Associate Engineer